

# Service Service Service

**AS445/20, /21, /25, /30**

# Service Manual

**COMPACT  
disc  
DIGITAL AUDIO****TABLE OF CONTENTS**

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Annex  
**Service Manual Record Player DL-40**  
**Service Manual Tape Transport RDN-11**

**CLASS 1  
LASER PRODUCT**

# Specification

## **General:**

Mains voltage	:	220V / 50Hz for /20, /22 240V / 50Hz for /25 120V or 230V /50Hz via voltage selector for /21, /30 120V / 60Hz for /37
Power consumption	:	≤ 80 W at maximum output power ≤ 10 W in stand by

## **Amplifier:**

Output power	:	2 x 10W at 6Ω D=10%
Music power	:	2 x 33W at 6Ω
Headphone	:	6.3mm stereo jack 25mW at 32Ω (=0.9V at 32Ω )
Power stage protection	:	Temperature
Frequency response	:	63 Hz - 14 kHz (-3dB) Limit 63 Hz - 17 kHz (-3dB) Typical value
Tone control		
DBB	:	±6dB at 100 Hz
300 Hz	:	±6dB at 300 Hz
1 kHz	:	±6dB at 1 kHz
4 kHz	:	±6dB at 4 kHz
10 kHz	:	±6dB at 10kHz
Input sensitivity		
PHONO/LINE	:	350 mV

## **Tuner:**

		FM	MW	LW
Tuning range		87.5 - 108 MHz Grid 50 kHz	522 - 1611 kHz (Grid 9kHz) 530 - 1700 kHz (only for /37) (Grid 10kHz)	148 - 284 kHz (Grid 3kHz)
Aerial input		Coax F-Connector 75 Ω	Ferrite antenna	Ferrite antenna
IF		10.7 MHz ± 25 kHz	450 kHz ± 1 kHz	450 kHz ± 1 kHz
Sensitivity	Mono : 26dB S/N Stereo : 46dB S/N Search tuning	≤ 4 µV (2 µV typ.) ≤ 45 µV 7 µV typ.	3 mV/m (1.5 mV/m typ.) ≤ 6mV/m	≤ 6 mV/m ≤ 6mV/m
Distortion		≤3% (2% typ.) RF=1mV Δf=75kHz	≤5% (3% typ) RF=100mV/m m=80%	≤5% (3% typ) RF=100mV/m m=80%
Channel separation		≥26dB (30dB typ.)	-	-
Image rejection ratio		30 dB (40 dB typ.)	27 dB (30 dB typ.)	40 dB (43 dB typ.)
-3 dB limiting point		≤ 5 µV (2 µV typ.)		

## **CD unit:**

Have to be measured direct on internal connector 1300

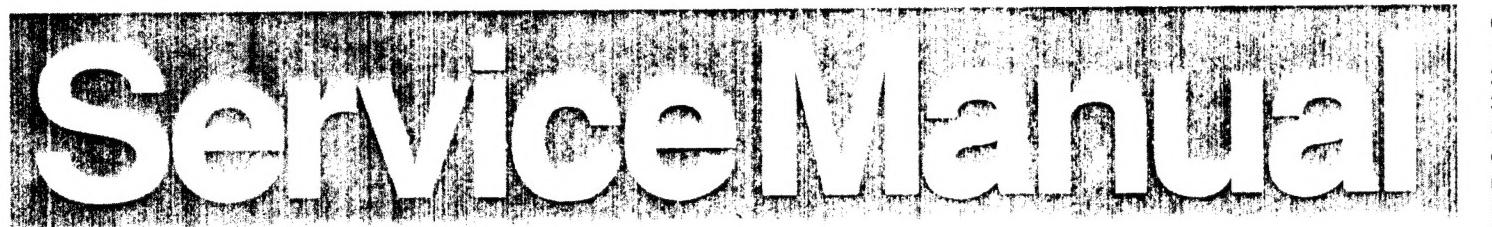
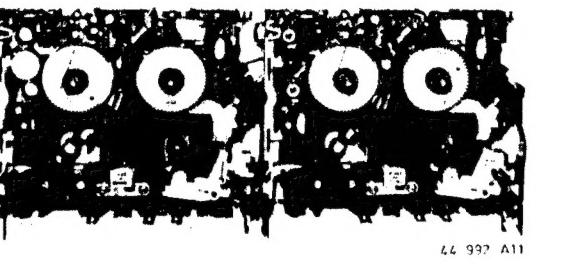
Frequency response	:	20 - 20.000 Hz ± 2 dB
Output level	:	2V ±3 dB
Signal/noise ratio	:	≥90 dB
Distortion	:	≤1% at 1 kHz
Channel difference	:	≤2 dB at 1 kHz
Channel crosstalk	:	50 dB max.
De emphasis	:	0 or 15/50µs switched automatically by subcode on the disc

## **Laser**

Output power	:	≤500µW
Wave length	:	780 ± 20 nm

# Tape transport RDN11

For details and exploded view see Service Manual of tape transport RN/RR, RDN/RDR (general documentation)



## GB MAINTENANCE

It is recommended to clean the recorder after approx. 500 hours of operation.

To be cleaned with alcohol or spirit

- Erase head
- Recording/playback head
- Capstan
- Pressure roller

## F ENTRETIEN

L'appareil devra être nettoyé après env. 500 heures de marche aux points les plus importants.

Nettoyer les éléments suivants à l'alcool ou à l'alcool à brûler:

- Tête effacement
- Tête enregistrement/reproduction
- Cabestan
- Galet presseur

## I MANUTENZIONE

E consigliabile pulire l'apparecchio dopo circa 500 ore di funzionamento ai punti principali.

Pulire con alcool

- Testina di cancellazione
- Testina di registrazione/riproduzione
- Capstan
- Rullo preminastro

Pour votre sécurité, ces documents doivent être utilisés par des spécialistes agréés, seuls habilités à réparer votre appareil en panne.

## SPECIAL FEATURES

### GB CONTINUOUS PLAY

**Definition:** "Play" starts on deck A (play back deck). After tape end on deck A, deck B (REC/PB - deck) will be going on with "Play" till tape end. Then both decks will be in "Stop" - mode due to full auto shut off.

Operating sequence:

- 1) start with "Play" on deck A
- 2) switch "Pause" on deck B
- 3) switch "Play" on deck B

After tape end on deck A auto stop - mechanism is working. The locked "play" - button on deck A and the "pause" - button on deck B will be released. "Play" - mode on deck B will now be active. After tape end on deck B full auto shut off will be activated.

### SYNCHRO START

"COPY" from deck A to deck B

Operating sequence:

- 1) switch "Pause" on deck B
- 2) switch "REC"(one touch) on deck B
- 3) switch "Play" on deck A

In that moment when the "play" - button on deck A will be depressed the "pause" - button on deck B will be released. Now "REC" - mode on deck B will be active. Both decks will be working.

If one of the cassettes reaches tape end full auto shut off will be activated and COPY is finished.

### NL ONONDERBROKEN WEERGEVEN

Omschrijving: Het weergeven begint op deck A (weergavedeck). Nadat op deck A het einde van de band is bereikt, gaat het weergeven door op deck B (opname/weergave-deck). Op dat moment worden beide decks geheel automatisch in de stand "Stop" geschakeld. Bedieningsvolgorde:

- 1) druk op toets "Play" op deck A
- 2) druk op toets "Pause" op deck B
- 3) druk op toets "Play" op deck B

Nadat het einde van de band op deck A is bereikt, treedt het autostop-mechanisme in werking. De vergrendelde toets "Play" op deck A en de toets "Pause" op deck B worden dan vrijgegeven. De stand "Play" op deck B is nu geactiveerd. Nadat het einde van de band op deck B is bereikt, wordt de volledig automatische uitschakeling geactiveerd.

### SYNCHROON STARTEN

"KOPIEREN" van deck A naar deck B

Bedieningsvolgorde:

- 1) druk op toets "Pause" op deck B
- 2) druk (een keer) op toets "REC" op deck B
- 3) druk op toets "Play" op deck A

Op het moment dat de toets "Play" op deck A wordt ingedrukt, wordt de toets "Pause" op deck B vrijgegeven. De stand "REC" op deck B is nu geactiveerd. Beide decks zijn in werking.

Indien op een van de cassettes het einde van de band wordt bereikt, wordt de volledig automatische uitschakeling geactiveerd en het kopiëren beëindigd.

### F LECTURE EN CONTINU

**Définition:** La lecture ("play") démarre sur la platine A (platine de lecture). A l'arrivée en fin de bande sur la platine A, la platine B (platine d'enregistrement/lecture) poursuivra la lecture ("play") jusqu'à la fin de la bande. Ensuite, les deux platines seront en mode arrêt ("stop") grâce à l'arrêt total automatique.

Ordre de fonctionnement :

- 1) mettez en marche avec "Play" sur la platine A
- 2) appuyez sur "Pause" sur la platine B
- 3) appuyez sur "Play" sur la platine B

Après l'arrivée en fin de bande sur la platine A, le mécanisme d'arrêt automatique entre en fonctionnement. Les touches verrouillées "play" sur la platine A et "pause" sur la platine B sont alors débloquées. Le mode lecture ("play") sur la platine B est à présent actif. Après l'arrivée en fin de bande sur la platine B, l'arrêt total automatique sera activé. Lorsque la touche de "sélection de mode" est en position 2 (inversée), il est alors possible d'écouter trois faces de deux cassettes en continu.

### DEPART SYNCHRONISE

Pour la COPIE de la platine A vers la platine B

Ordre de fonctionnement :

- 1) appuyez sur "Pause" sur la platine B
- 2) appuyez sur "REC" (enregistrement à une touche) sur la platine B

- 3) appuyez sur "Play" sur la platine A

Au moment où la touche "play" (lecture) sur la platine A sera enfoncee, la touche "pause" sur la platine B sera dégagée. Le mode "REC" (enregistrement) sur la platine B est à présent actif. Les deux platines fonctionnent. Si l'une des cassettes arrive en fin de bande, l'arrêt total automatique sera activé et la COPIE terminée.

### D CONTINUOUS PLAY

**Definition:** "Play" beginnt auf Laufwerk A (Wiedergabe - Laufwerk). Am Bandende von Laufwerk A setzt Laufwerk B (Aufn./Wg - Laufwerk) mit "Play" fort und läuft bis Bandende. Danach sind beide Laufwerke abgeschaltet. Bedienungsablauf:

- 1) "Play"- Taste auf Laufwerk A drücken
  - 2) "Pause"- Taste auf Laufwerk B drücken
  - 3) "Play"- Taste auf Laufwerk B drücken
- Am Bandende von Laufwerk A arbeitet der Auto stop - Mechanismus. Die "Play"- Taste von Laufwerk A und die "Pause"- Taste von Laufwerk B werden gelöst. Auf Laufwerk B ist nun die "Play"- Funktion eingeschaltet. Am Bandende von Laufwerk B schaltet die automatische Endabschaltung ab.

### SYNCHRO START

"Kopieren" von Laufwerk A auf Laufwerk B.

Bedienungsablauf:

- 1) "Pause"- Taste von Laufwerk B drücken
  - 2) "REC"- Taste (one touch) von Laufwerk B drücken
  - 3) "Play"- Taste von Laufwerk A drücken
- In dem Moment wo die "Play"- Taste von Laufwerk A gedrückt wird, wird die "Pause"- Taste von Laufwerk B gelöst. "Aufnahme"- Modus wird dadurch auf Laufwerk B aktiviert und beide Laufwerke arbeiten.

Erreicht eine der beiden Kassetten das Bandende, schaltet die automatische Endabschaltung ab und der Kopierbetrieb wird beendet.

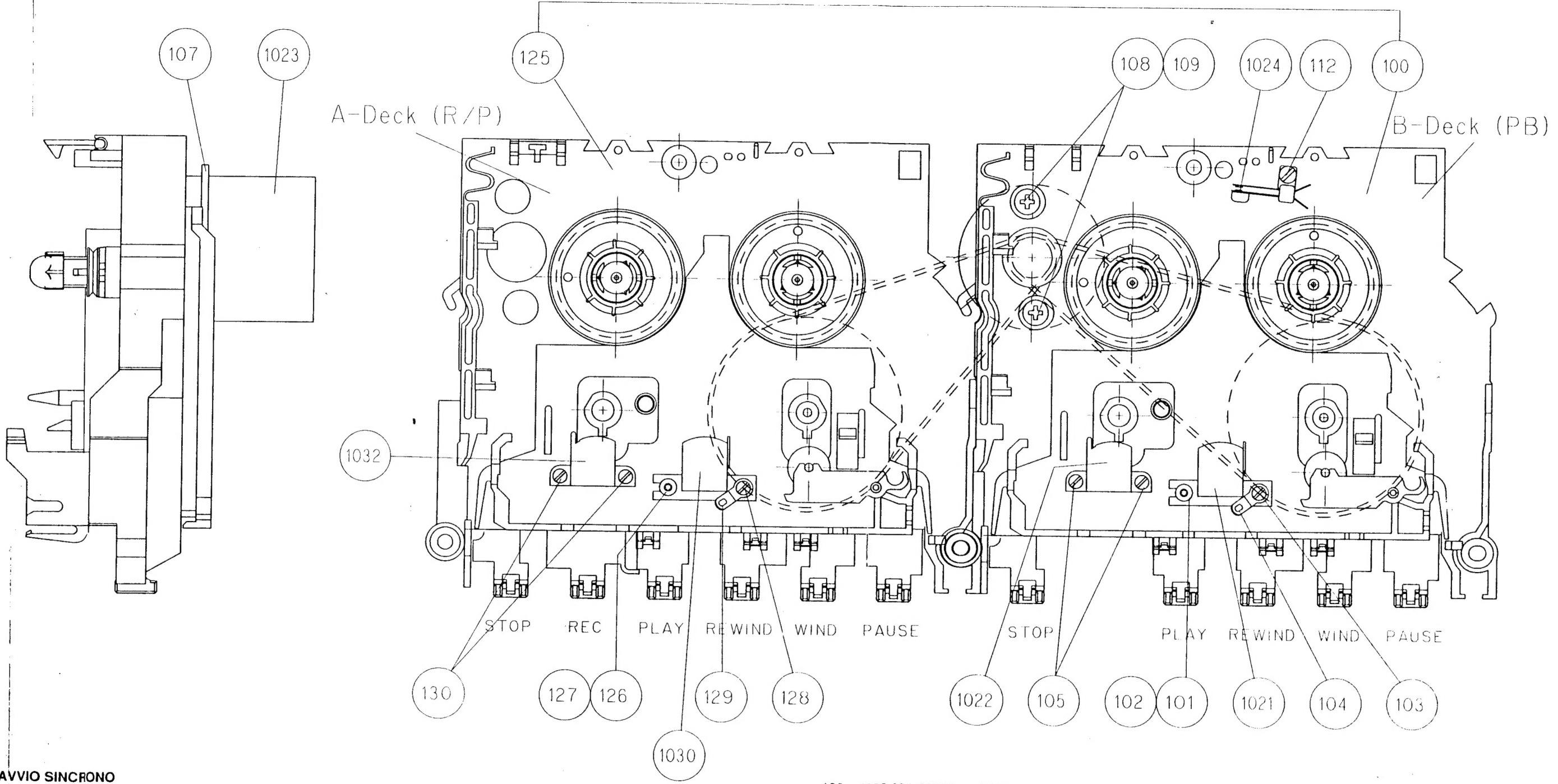
### I RIPRODUZIONE CONTINUA

Funzionamento: la riproduzione inizia con la cassetta nel riproduttore A. Alla fine del nastro della cassetta nel riproduttore A, la riproduzione viene continuata con la cassetta nel registratore/riproduttore B. In tale momento, ambedue gli apparecchi vengono commutati automaticamente nel modo di arresto.

Ordine di comando:

- 1) premere il tasto "Play" sul riproduttore A
  - 2) premere il tasto "Pause" sul registratore/riproduttore B
  - 3) premere il tasto "Play" sul registratore/riproduttore B
- Alla fine del nastro della cassetta nel riproduttore A, viene attivato il meccanismo di arresto automatico dello stesso. Viene rilasciato il tasto "Play" sul riproduttore A ed il tasto "Pause" sul registratore/riproduttore B. Viene avviata la riproduzione della cassetta nel registratore/riproduttore B. Quando è stata raggiunta la fine del nastro della cassetta nel registratore/riproduttore B, ambedue gli apparecchi vengono arrestati automaticamente.

STRIPPED VERS. WITHOUT NOTED ITEMS IS CALLED AND HANDLED AS **RN 0** 4822 691 10296



#### AVVIO SINCRONO

COPIATURA della cassetta nel riproduttore A sulla cassetta nel registratore/riproduttore B.

Ordine di comando:

- 1) premere il tasto "PAUSE" sul registratore/riproduttore B.
- 2) premere (una volta) il tasto "REC" sul registratore/riproduttore B.
- 3) premere il tasto "PLAY" sul riproduttore A.

Premendo il tasto "PLAY" sul riproduttore A verrà rilasciato il tasto "PAUSE" sul registratore/riproduttore B e quest'ultimo predisposto per la registrazione. La cassetta nel riproduttore A viene copiata sulla cassetta nel registratore/riproduttore B. Quando viene raggiunta la fine del nastro di una delle cassette, ambedue gli apparecchi vengono arrestati automaticamente.

100	4822 691 10296	RN 0 assy
101	4822 492 51473	spring azimuth
107	4822 529 10254	damper,motor
108	4822 502 11866	screw,motor
125	4822 691 10296	RN 0 assy
126	4822 492 51473	spring,azimuth
1021	4822 249 10397	head,Rec/Pb
1022	4822 404 10685	head,dummy
1023	4822 361 21637	motor, MSI-5U2LWDR
1024	4822 271 30598	switch indication play
1030	4822 249 10397	head,Rec/Pb
1032	4822 249 20072	head,erase

#### General parts

7/67	4822 520 10718	bearing plate
38	4822 520 40134	ball, bearing
40	4822 402 10037	lever, pinch roller right
41/76	4822 528 70646	pinch roller
43	4822 404 10853	slide, key lock
58	4822 358 30929	drive belt RN0 S (long)
98	4822 358 30928	drive belt RN0 D (short)
402	4822 528 20676	take-up clutch assy

( pos. num. refer to exploded view in General Documentation 4822 725 23763 )

Only those parts of which a service code number is stated are service parts.

**Recorder part:**

Tape speed	: 4.76cm/s ±2% in Normal Speed : 8.5cm/s ±12% in High Speed Dubbing
Wow & Flutter	: ≤0.4%
Winding speed	: ≤ 130s for C60 cassette
Erase / Bias system	: AC 60kHz
RIF-shift	: service solution on request
Distortion at 200 nWb/m	: ≤ 5%
Channel difference at PB	: ≤ 3dB
Channel difference overall	: ≤ 3dB
Channel separation	: ≥ 18dB at 1kHz
Track separation	: ≥ 55dB at 1kHz

**Phono part:**

Power supply	: 12V DC / 80mA
Wow & Flutter	: 0.25% JIS
Operating speed	: 0.35% DIN
Drive system	: 33⅓ and 45 rpm

: Belt drive with automatic return

	IEC I	IEC I (dubbing)	IEC II	IEC II (dubbing)	Dubbing HS <sup>3)</sup>
Frequency response -8 dB <sup>1)</sup>	100Hz - 10kHz	125Hz - 8kHz	100Hz - 10kHz	125Hz - 8kHz	125Hz - 8kHz
Signal to Hiss ratio <sup>2)</sup> A-weighted	≥ 45 dB	≥ 45 dB	≥ 45 dB	≥ 45 dB	
Signal to Noise ratio <sup>2)</sup> FF-weighted	≥ 40 dB	≥ 40 dB	≥ 40 dB	≥ 40 dB	
Erase attenuation <sup>4)</sup>	≥ 55 dB	≥ 55 dB	≥ 55 dB	≥ 55 dB	

<sup>1)</sup> typical value

<sup>2)</sup> at 250 nWb/m

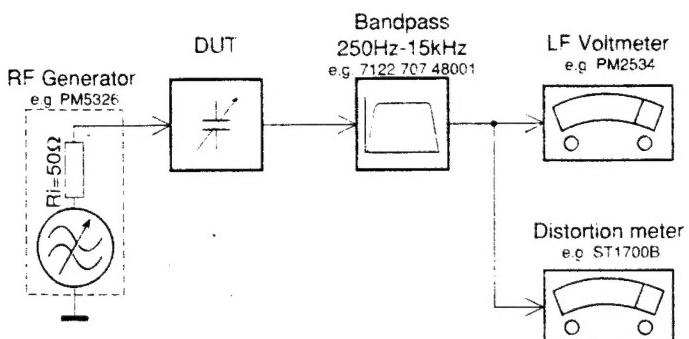
<sup>3)</sup> at -10dB

<sup>4)</sup> Use a 1kHz passfilter to minimize the wide band noise component.

**The set reacts on following RC5 commands:**

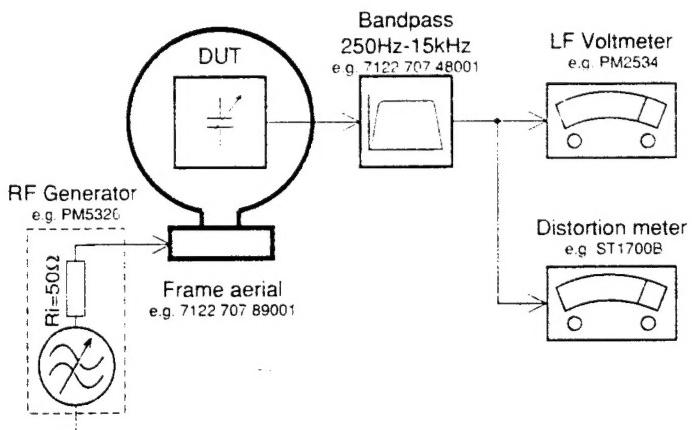
	Systemcode	Commandcode
Stand by	17,20,21	12
Tuner	17	63
Aux/Phono	21	63
CD	20	63
Volume up	16	16
Volume down	16	17
Repeat	20	29
Shuffle	20	28
Scan	20	43
Play (CD)	20	53
Pause (CD)	20	48
Next (CD)	20	32
Previous (CD)	20	33
Search Forward (CD)	20	52
Search Backward (CD)	20	50
Stop (CD)	20	54
Tuning up	17	30
Tuning down	17	31
Preset up	17	32
Preset down	17	33

### Tuner FM



Use a bandpass filter to eliminate hum (50Hz, 100Hz) and disturbance from the pilottone (19kHz, 38kHz).

### Tuner AM (MW,LW)

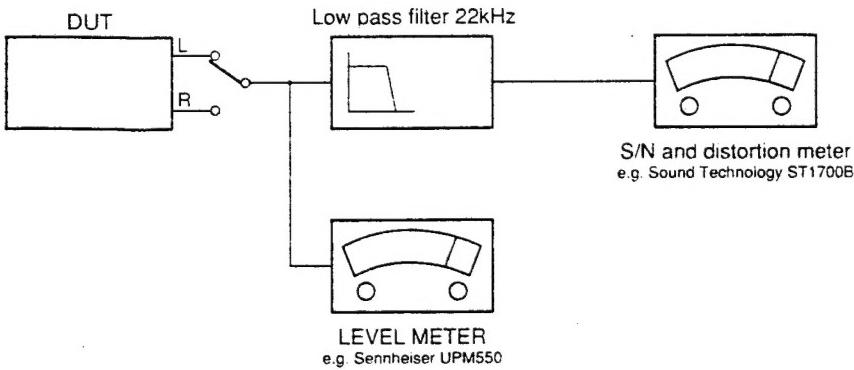


To avoid atmospheric interference all AM-measurements have to be carried out in a Faraday's cage.  
Use a bandpass filter (or at least a high pass filter with 250Hz) to eliminate hum (50Hz, 100Hz).

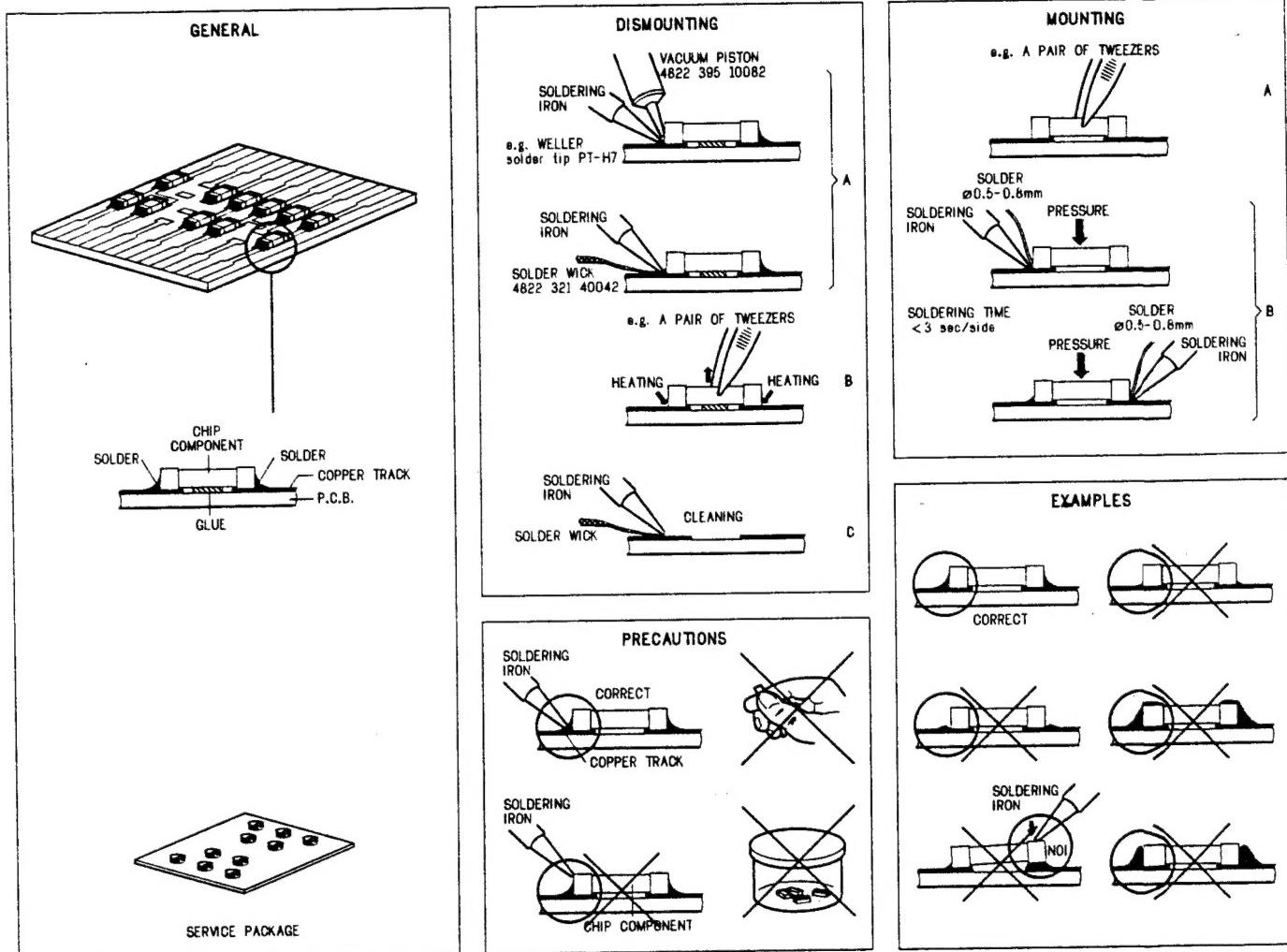
### CD

Use Audio Signal Disc SBC429 4822 397 30184 (replaces test disc 3)

L.P.F. = 13<sup>th</sup> order filter 4822 395 30204



## HANDLING CHIP COMPONENTS



### **(GB)** WARNING

All ICs and many other semiconductors are susceptible to electrostatic discharges (ESD). Careless handling during repair can reduce life drastically. When repairing, make sure that you are connected with the same potential as the mass of the set via a wrist wrap with resistance. Keep components and tools at this potential.

### **(F)** ATTENTION

Tous les IC et beaucoup d'autres semi-conducteurs sont sensibles aux décharges statiques (ESD). Leur longévité pourrait être considérablement écourtée par le fait qu'aucune précaution n'est prise à leur manipulation. Lors de réparations, s'assurer de bien être relié au même potentiel que la masse de l'appareil et enfilier le bracelet sur une résistance de sécurité. Veiller à ce que les composants ainsi que les outils que l'on utilise soient également à ce potentiel.

### **(GB)**

Safety regulations require that the set be restored to its original condition and that parts which are identical with those specified be used.

### **(D)**

Bei jeder Reparatur sind die geltenden Sicherheitsvorschriften zu beachten. Der Originalzustand des Gerätes darf nicht verändert werden. Für Reparaturen sind Originalersatzteile zu verwenden.

### **(S)** Varning !

Osynlig laserstrålning när apparaten är öppnad och spärren är urkopplad. Beträkta ej strålen.

### **(F)**

Pour votre sécurité, ces documents doivent être utilisés par des spécialistes agréés, seuls habilités à réparer votre appareil en panne.

### ESD



### **(NL)** WAARSCHUWING

Alle IC's en vele andere halfgeleiders zijn gevoelig voor elektrostatische ontladingen (ESD). Onzorgvuldig behandelen tijdens reparatie kan de levensduur drastisch doen verminderen. Zorg ervoor dat u tijdens reparatie via een polsband met weerstand verbonden bent met hetzelfde potentiaal als de massa van het apparaat. Houd componenten en hulpmiddelen ooit op ditzelfde potentiaal.

### **(I)** AVVERTIMENTO

Tutti IC e parecchi semi-conduttori sono sensibili alle scariche statiche (ESD). La loro longevità potrebbe essere fortemente ridotta in caso di non osservanza della più grande cautela alla loro manipolazione. Durante le riparazioni occorre quindi essere collegato allo stesso potenziale che quello della massa dell'apparecchio tramite un braccialetto alla sbarra. Assicurarsi che i componenti e anche gli utensili con quali si lavora siano anche a questo potenziale.

### **(I)**

Le norme di sicurezza esigono che l'apparecchio venga rimesso nelle condizioni originali e che siano utilizzati i pezzi di ricambio identici a quelli specificati.

### **(F)**

Les normes de sécurité exigent que l'appareil soit remis à l'état d'origine et que soient utilisées les pièces de rechange identiques à celles spécifiées.

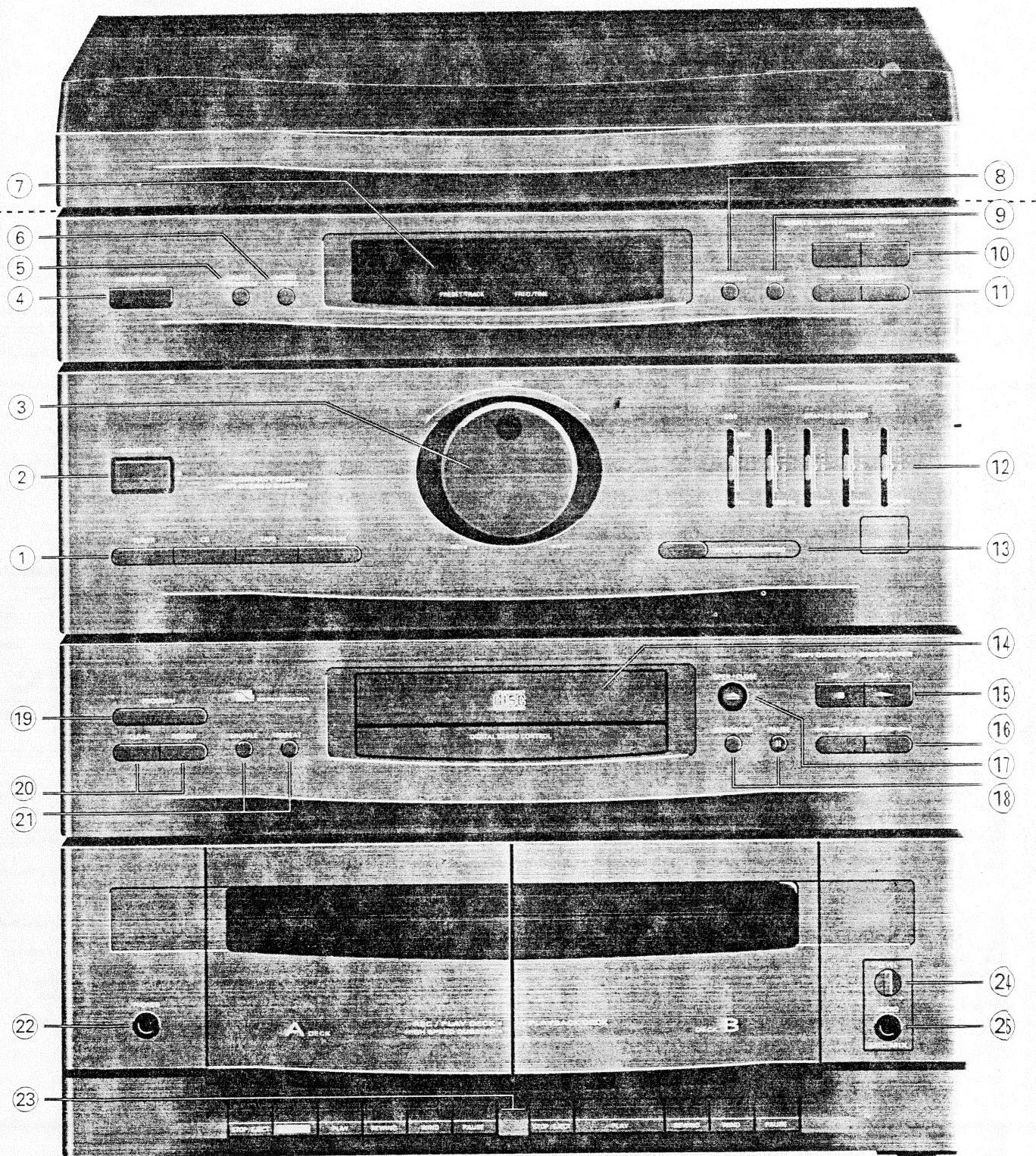
### **(DK)** Advarsel !

Usynlig laserstrålning ved åbning når sikkerhedsaltbrydere er ude af funktion. Undgå udsættelse for stråling.

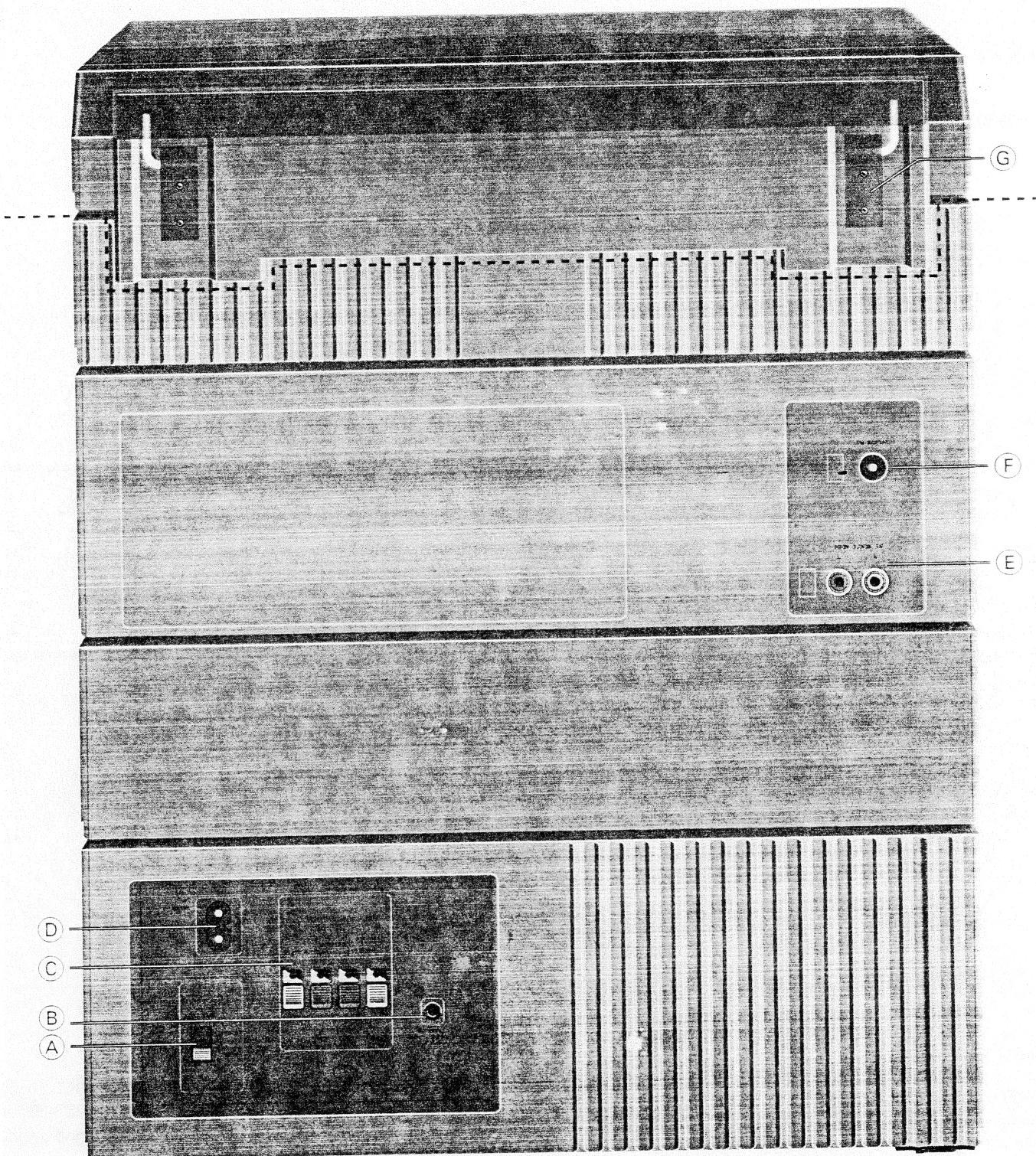
### **(SF)** Varoitus !

Avaltessa laitteessa ja suojalukitukseen. Tässä olet alittina näkymättömälle lasersäteilylle. Älä kahda sääteeseen!

## Connection & Controls



1	Source selector Tuner ..... CD ..... Tape ..... Phono/Aux.....	see page 25, 26 1440 1438 1444 1437	11 Tuning Up ..... Down .....	1421 1422	see page 29, 30
2	Stand by .....	1439	12 Graphic Equalizer 100Hz/DBB ..... 300Hz ..... 1kHz ..... 4kHz ..... 10kHz .....	3485 3484 3483 3482 3481	see page 25, 26
3	Volume .....	3480	13 High Speed Dubbing .....	1433	see page 29, 30
4	Remote sensor .....	7422	14 CD Tray .....	1424	see page 29, 30
5	Auto Program .....	1436	15 Stop (CD)..... Play (CD) .....	1428	see page 29, 30
6	Mono/Stereo.....	1448	16 Track skip (CD) ◀▶ .....	1431	see page 29, 30
7	Display .....	1415	▶▶ .....	1432	see page 29, 30
8	Program (Tuner) .....	1435			
9	Band .....	1434			
10	Presets Up ..... Down .....	1425 1426			



- 17 Open/Close (CD) ..... 1427
- 18 Introscan (CD) ..... 1429
- Pause (CD) ..... 1430
- 19 Program (CD) ..... 1441
- 20 Clear (CD) ..... 1446
- 21 Review (CD) ..... 1447
- 22 Headphone socket ..... 1410
- 23 Tape transport keys ..... mechanical
- 24 Micro Mix Level ..... 3905
- 25 Microphone socket ..... 1900

- see page 29, 30
- see page 25, 26
- see page 22
- see page 22

- A Voltage selector ..... 1260 see page 39
- B Phono supply ..... 1305 see page 37, 38
- C Speaker terminal ..... 1304 see page 37, 38
- D Mains socket ..... 1255 see page 39
- E Aux / Phono sockets ..... 1408 see page 25, 26
- F FM aerial socket ..... 1101 for ECO 4 Tuner see page 40
- FM aerial socket ..... 1110 for Tuner 92 see page 46

## Service Hints

### Version Table (Quick reference)

	AS440 /00, /20, /20P	AS440 /02, /22, /22P	AS440 /05, /25, /25P	AS440 /17, /37,	AS445 /00, /20	AS445 /01, /21	AS445 /05, /25	AS445 /10, /30
<b>Mains cord</b>								
4822 321 10954								x
4822 321 10831	x	x			x	x		
4822 321 10883				x				
4822 321 10918			x				x	
<b>Mains transformer</b>								
4822 146 31239	x	x			x			
4822 146 31234				x				
4822 146 31235						x		x
4822 146 31254			x				x	
<b>Mains socket</b>								
4822 265 31015	x	x	x		x	x	x	x
4822 265 31016				x				
<b>Voltage selector</b>								
4822 272 10269						y		x
<b>IR Remote control</b>								
4822 218 10513	x	x	x	y	x	x	x	x
<b>Loudspeaker box</b>								
4822 445 10359	x	x	x		x		x	
4822 445 10361				x				
4822 445 10362						x		x
<b>Tuner</b>								
ECO4 Tuner	x		x	x	x	x	x	x
Tuner 92		x						
<b>Record player</b>								
DL-40					x	x	x	x
<b>Micro Mix function</b>								
available						x		x

### Service tools

TORX screwdriver set SBC 163	4822 395 50145
Audio signal disc SBC 429	4822 397 30184
Test disc 5 (disc without errors)	
Test disc 5A (disc with dropout errors, black spots and finger prints)	
SBC 426/426A	4822 397 30096

#### Burn in test disc (65 min. 1kHz signal

at -30dB level without "pause") • 4822 397 30155

Universal test cassette Fe SBC 420 4822 397 30071

Universal test cassette CrO<sub>2</sub> SBC 419 4822 397 30069

Instruction for use (all versions except /37) 4822 736 21737

Instruction for use (for /37) 4822 736 21738

### Dismantling of:

**CD Brick** : see page 52

**Front assy**

- \* Remove top cover as shown in picture 1.
- \* Remove right side of the cabinet (10 screws)
- \* Remove 3 bottom screws and 3 screws from left side wall on front side.
- \* Remove 1 screw to CD metal support on rear.
- \* Release 2 snaps (bottom-front) and turn whole front assy aside.

**Tape Transports**

- \* Separate Front assy as described above
- \* Loosen Recorder assy (6 screws)

#### Power Board

\* Remove top cover as shown in picture 1

\* Remove rear part of cabinet (20 screws).

\* Loosen power board (4 screws).

\* Take power board and place it behind the set.

Remarks: Cable to headphone socket has to be disconnected.

Remove CD brick if necessary.

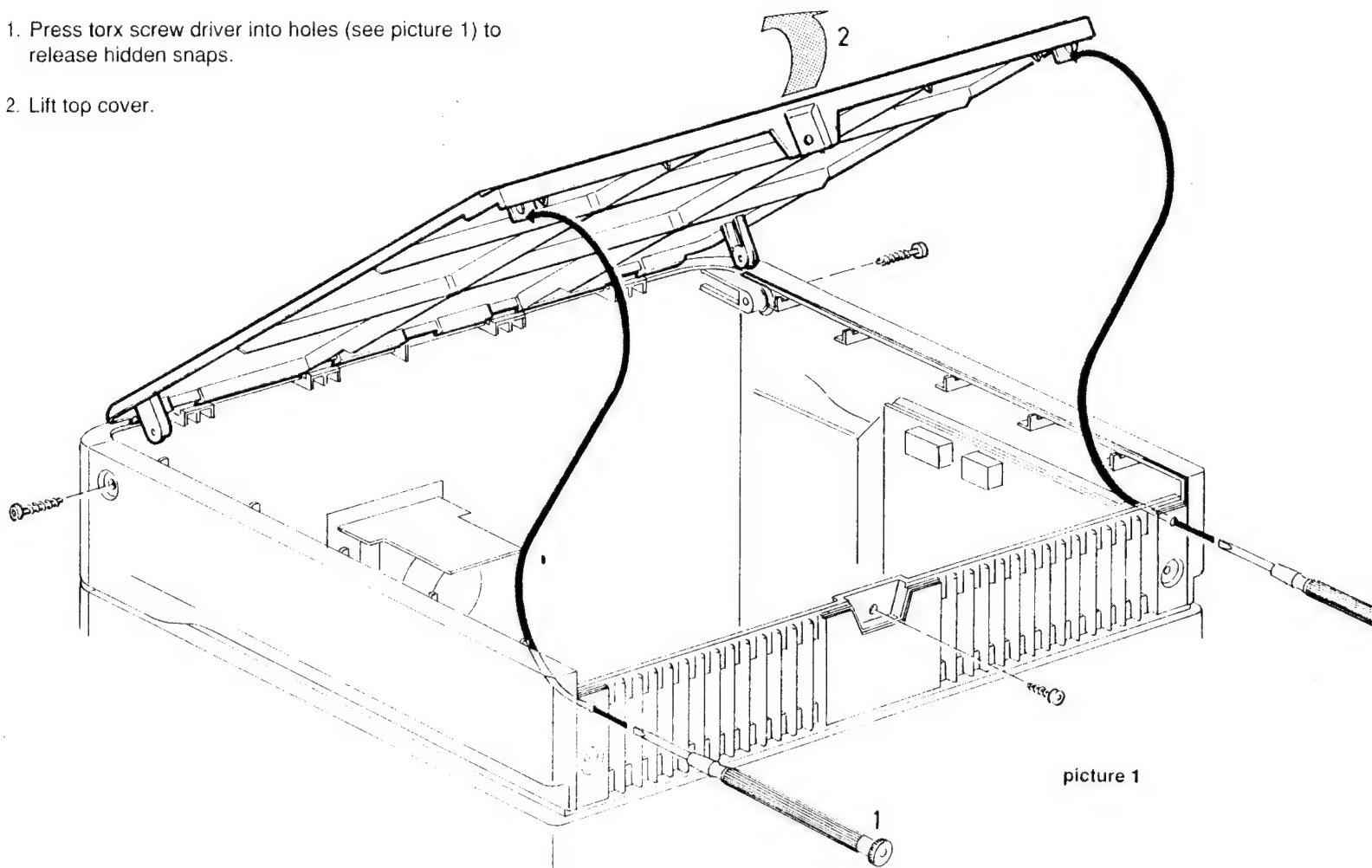
## Dismantling Hints

### Dismantling of Top Cover

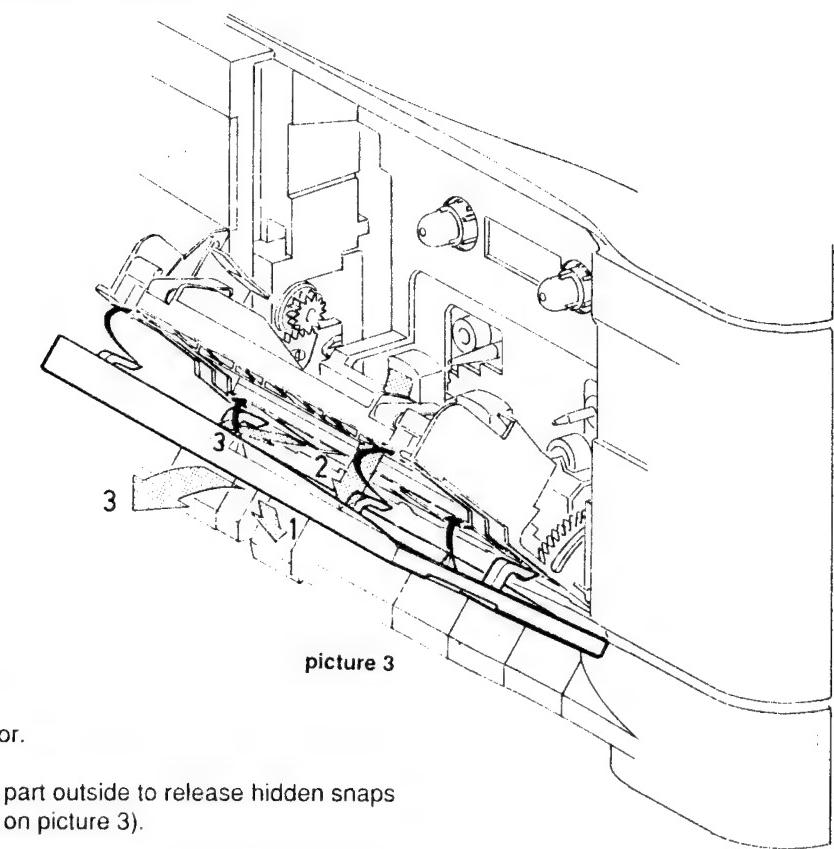
Remove 3x screws.

1. Press torx screw driver into holes (see picture 1) to release hidden snaps.

2. Lift top cover.

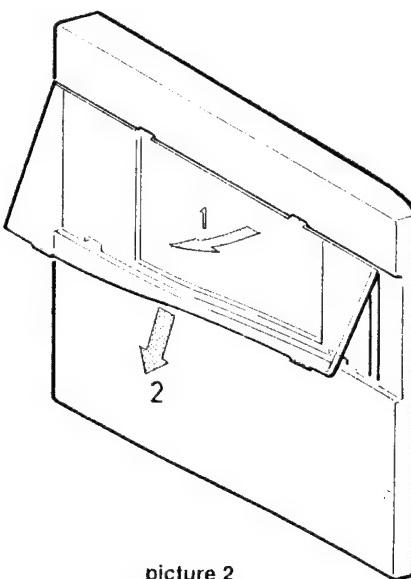


### Dismantling Cassette Door Ornamental Part

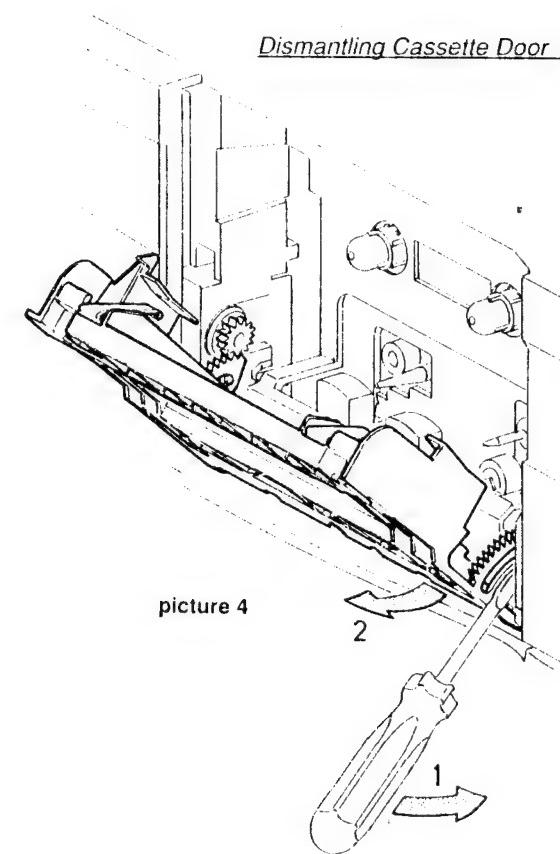


- 1) Open cassette door.
- 2) Press ornamental part outside to release hidden snaps (see black arrows on picture 3).
- 3) Pull ornamental part upwards.

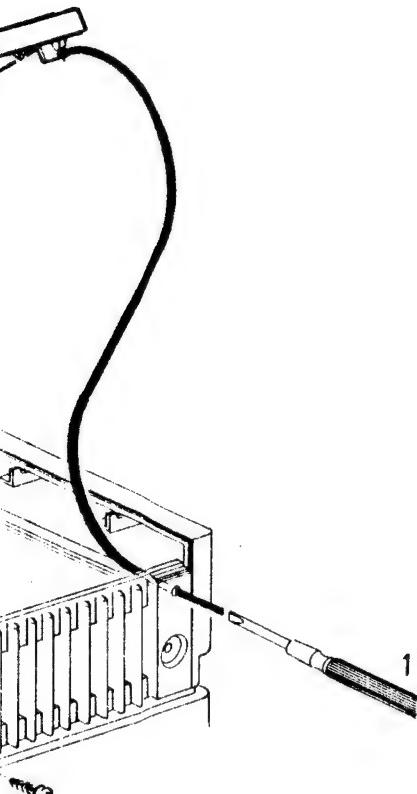
### Dismantling Window of Cassette Door



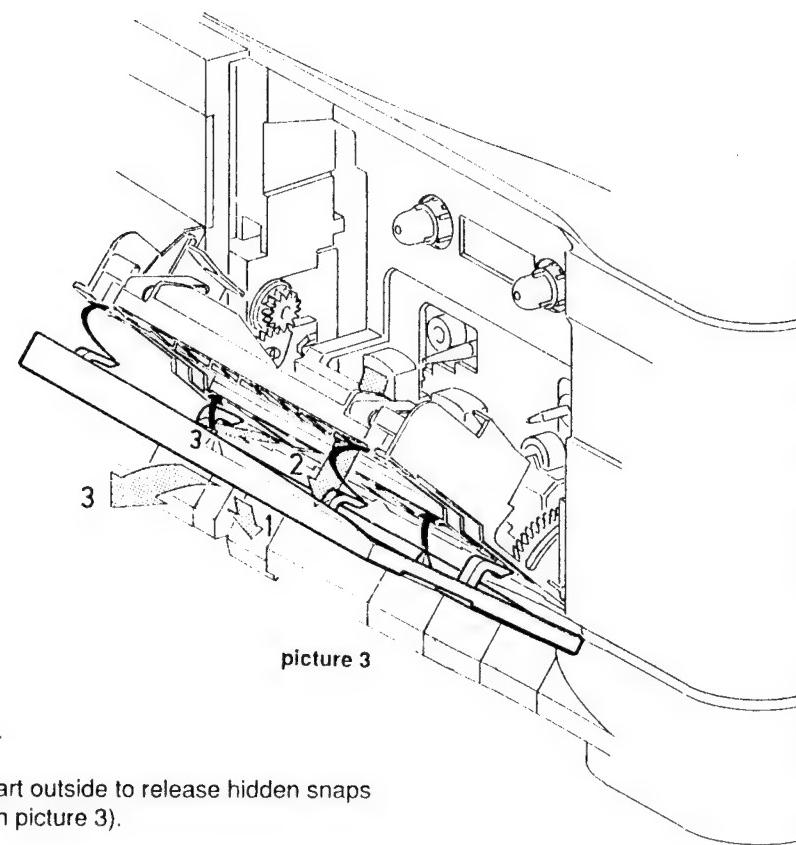
- 1) Press the window outside as shown in picture 2.  
You don't need any tool.



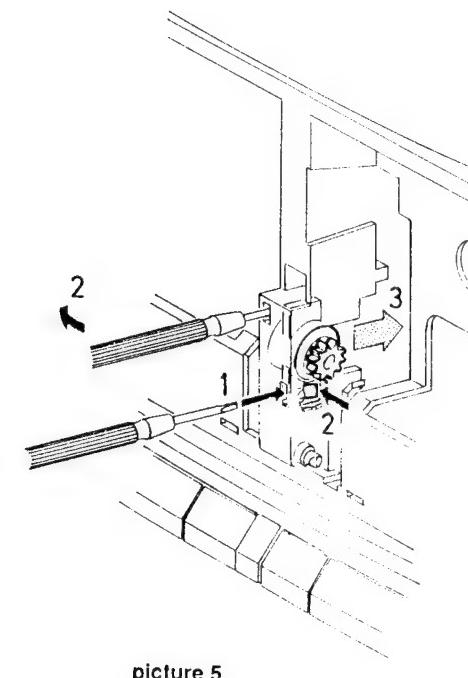
- Remove ornamental part first.
- 1) Bend tooth segment with a screw driver to release snap as shown in picture 4.
  - 2) Pull cassette door outside.

Dismantling Cassette Door Ornamental Part

picture 1



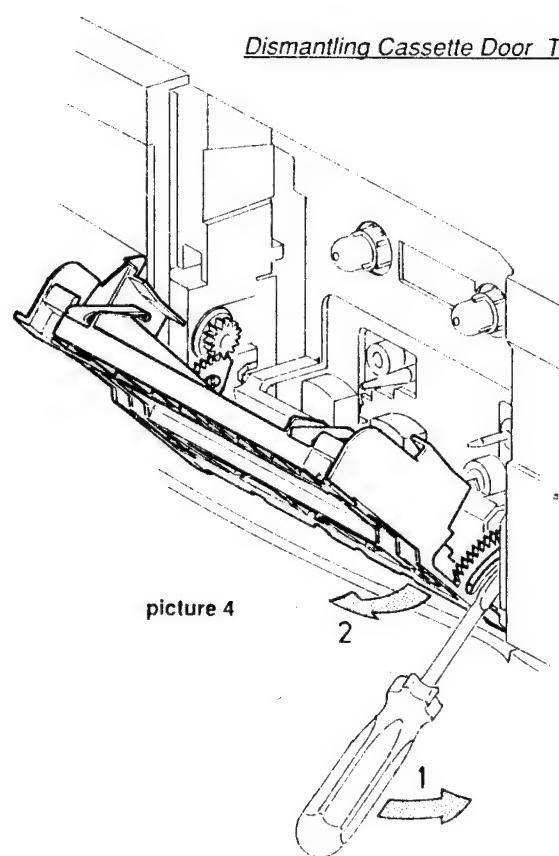
- 1) Open cassette door.
- 2) Press ornamental part outside to release hidden snaps (see black arrows on picture 3).
- 3) Pull ornamental part upwards.

Dismantling of Damper

picture 5

Remove Tape Transports and bracket (506) first.

- 1+2) Release two snaps as shown in picture 5.
- 3) Pull damper outside.

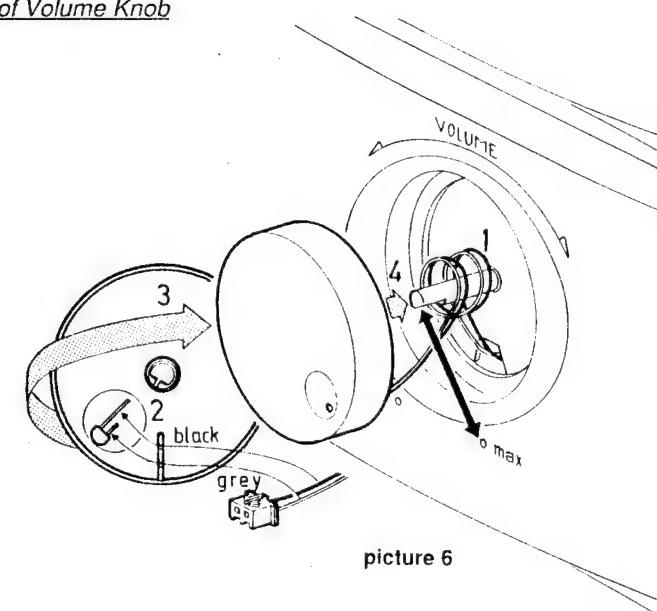


picture 4

Dismantling Cassette Door Technical Part

Remove ornamental part first.

- 1) Bend tooth segment with a screw driver to release snap as shown in picture 4.
- 2) Pull cassette door outside.

Mounting of Volume Knob

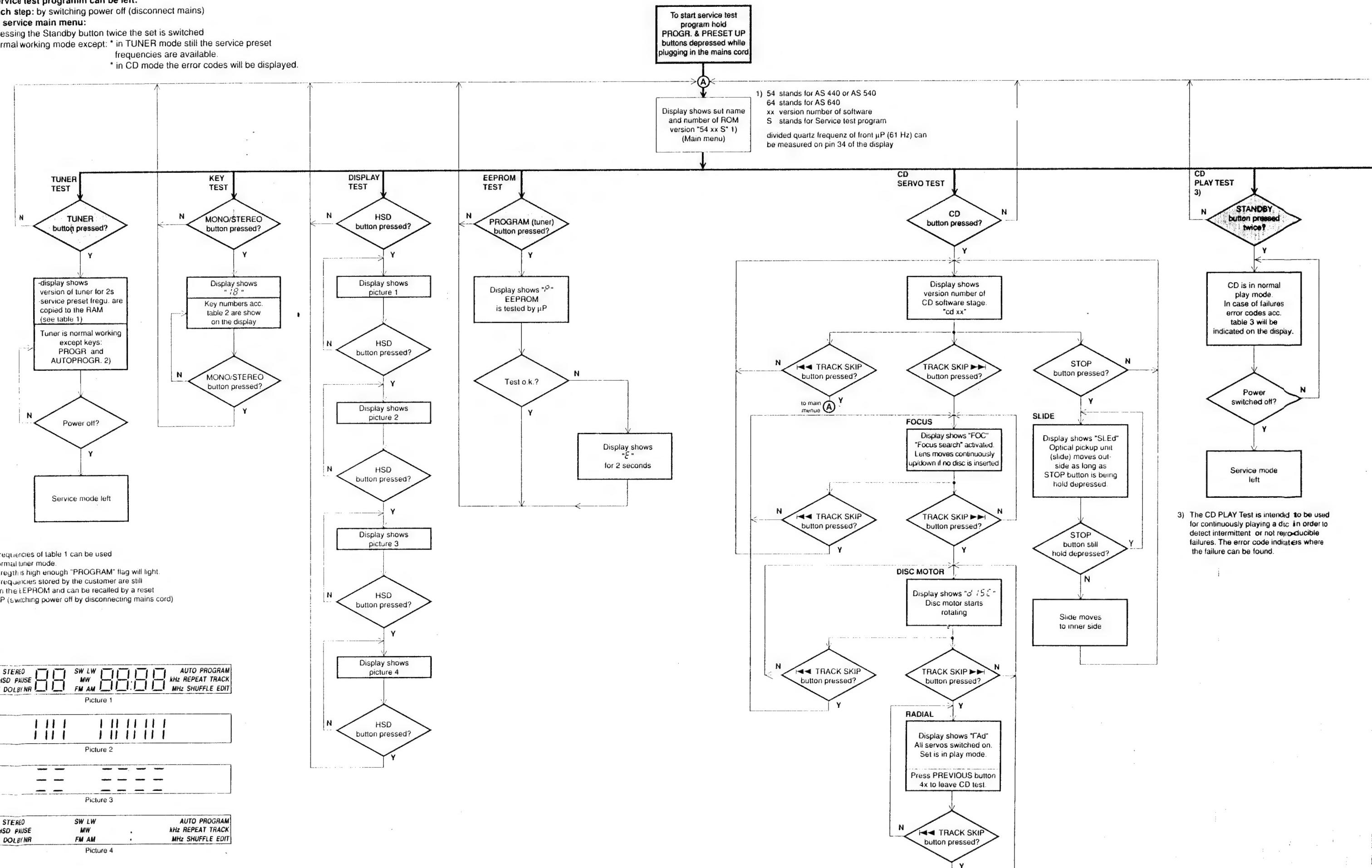
picture 6

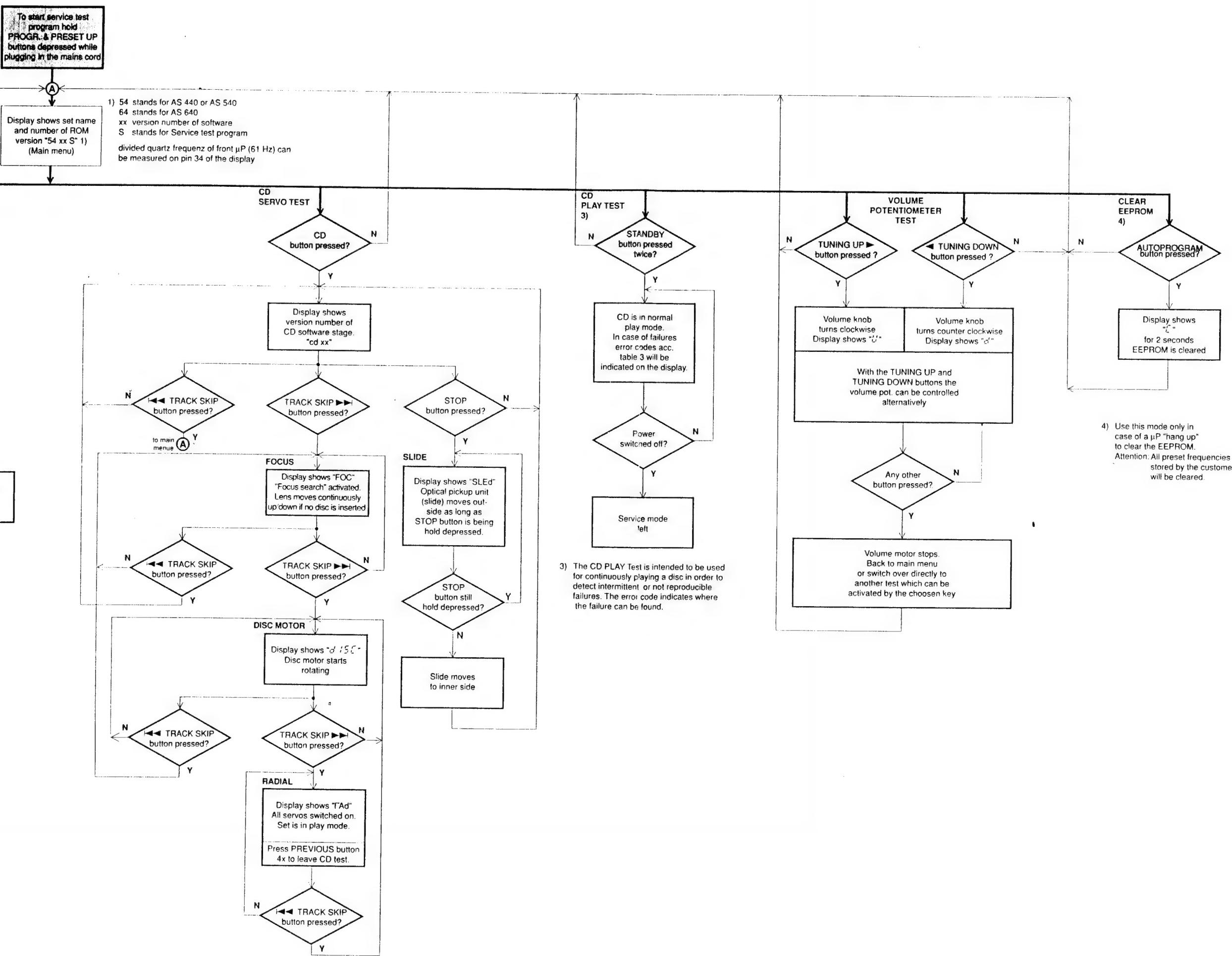
- 1) Turn Volume pot to max. (clockwise)
- 2) Pay attention to the polarity of the LED.
- 3) Turn the cable two times clockwise onto the axle.
- 4) Insert the knob.

## **SERVICE TEST PROGRAM**

The service test programm can be left:

- **at each step:** by switching power off (disconnect mains)
  - **from service main menu:**
    - by pressing the Standby button twice the set is switched to normal working mode except: \* in TUNER mode still the service preset frequencies are available.
    - \* in CD mode the error codes will be displayed.





VERSION						
PRESET	EUR	EAS	USA	EUS	OSE	OSS
1	87,5	65,81	87,5	87,5	87,5	87,5
2	108	74	108	108	108	108
3	98	87,5	98	98	98	98
4	89,7	108	89,7	89,7	89,7	89,7
5	93	98	93	93	93	93
6	104,9	89,7	104,9	104,9	104,9	104,9
7	522	93	530	522	530	530
8	1611	104,9	1710	1611	1710	1710
9	540	522	540	540	540	540
10	549	1611	550	549	550	550
11	558	540	560	558	560	560
12	1494	549	1500	1494	1500	1500
13	153	558	1600	153	1600	1600
14	279	1494	1000	279	1000	3900
15	156	153		156		12100
16	198	279		198		4250
17	270	156		270		8000
18	999	198		5900		11900
19		270		18100		1000
20		999		6200		
21				17000		
22				12000		
23				999		

table 1

Error code shown on the display	Description
Er 1002	Focus error
Er 1007	Subcode error, no valid subcode
Er 1008	TOC error, out of lead-in area while reading TOC
Er 1009	CD4 + decoder error
Er 1010	Radial error
Er 1012	Fatal sledge error
Er 1013	Turntable motor error
Er 1030	Too many grooves to jump
Er 1031	Search error
Er 1032	Search binary error
Er 1033	Search index error
Er 1034	Search time error
Er 1037	Selector error
Er 1050	Edit calculation error
Er 1051	Edit track count error
Er 1052	Edit Optimal error

table 3

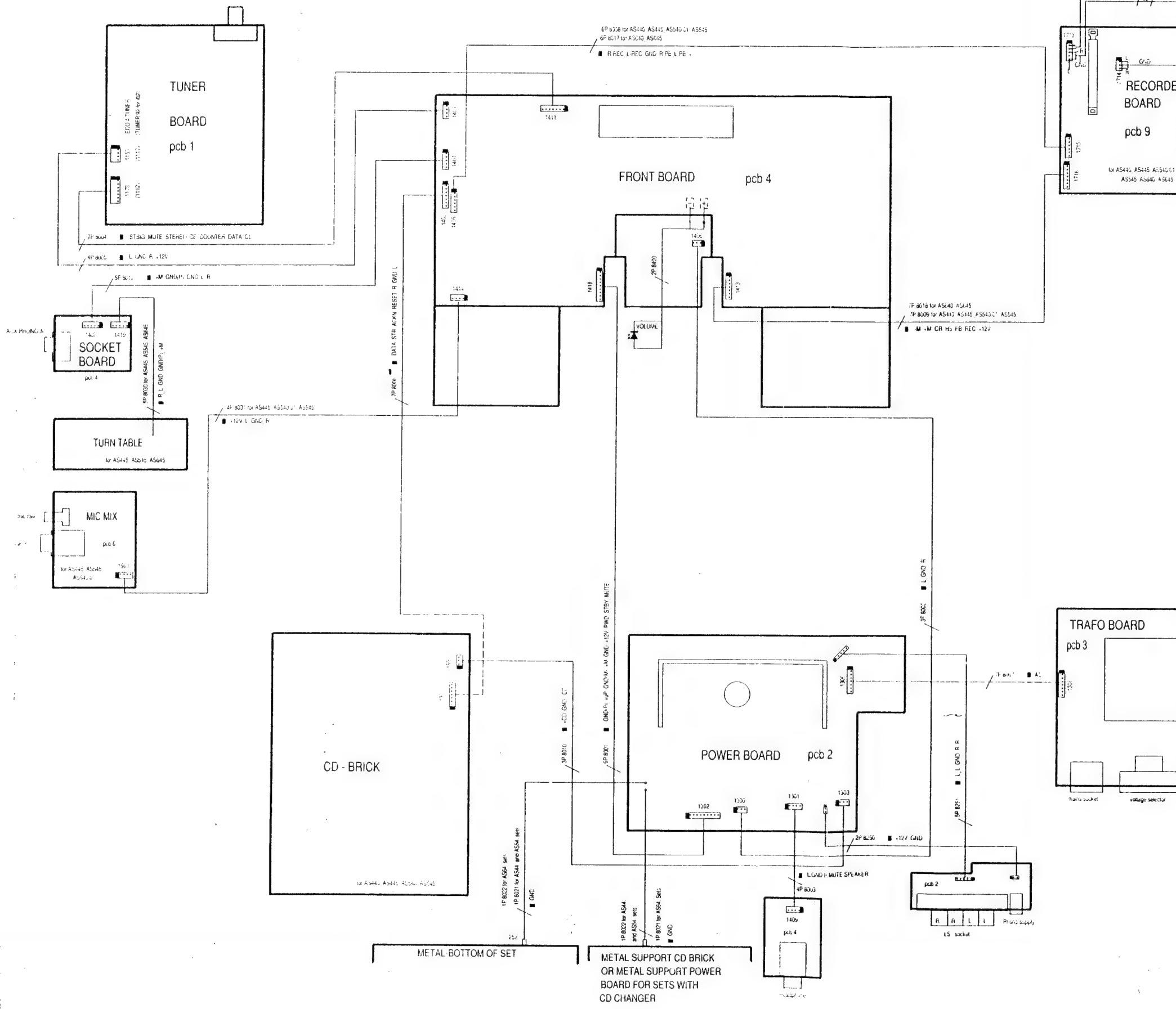
Key activated	Display shows	Key activated	Display shows
Tuning up	01	Autoprogram	17
Tuning down	03	Mono / Stereo	18
Preset up	04	Tuner	19
Preset down	02	Stand by	20
Dolby <sup>1)</sup>	05	Tape	21
Band	06	Phono / Aux	22
Program(Tuner)	07	CD	23
Fe/Cr <sup>1)</sup>	08	—	—
Introscan	09	Repeat	25
Pause (CD)	10	Shuffle	26
<< Track skip	11	Review	27
Track skip >>	12	Clear	28
HS dubbing	13	—	—
Open/Close	14	Edit <sup>1)</sup>	30
Stop (CD)	15	—	—
Play (CD)	16	Program (CD)	32

table 2

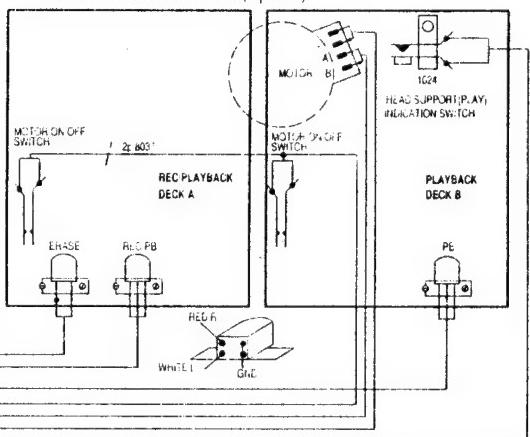
If a key is activated at the remote control  is shown additionally to the key number as long as the key is held depressed.

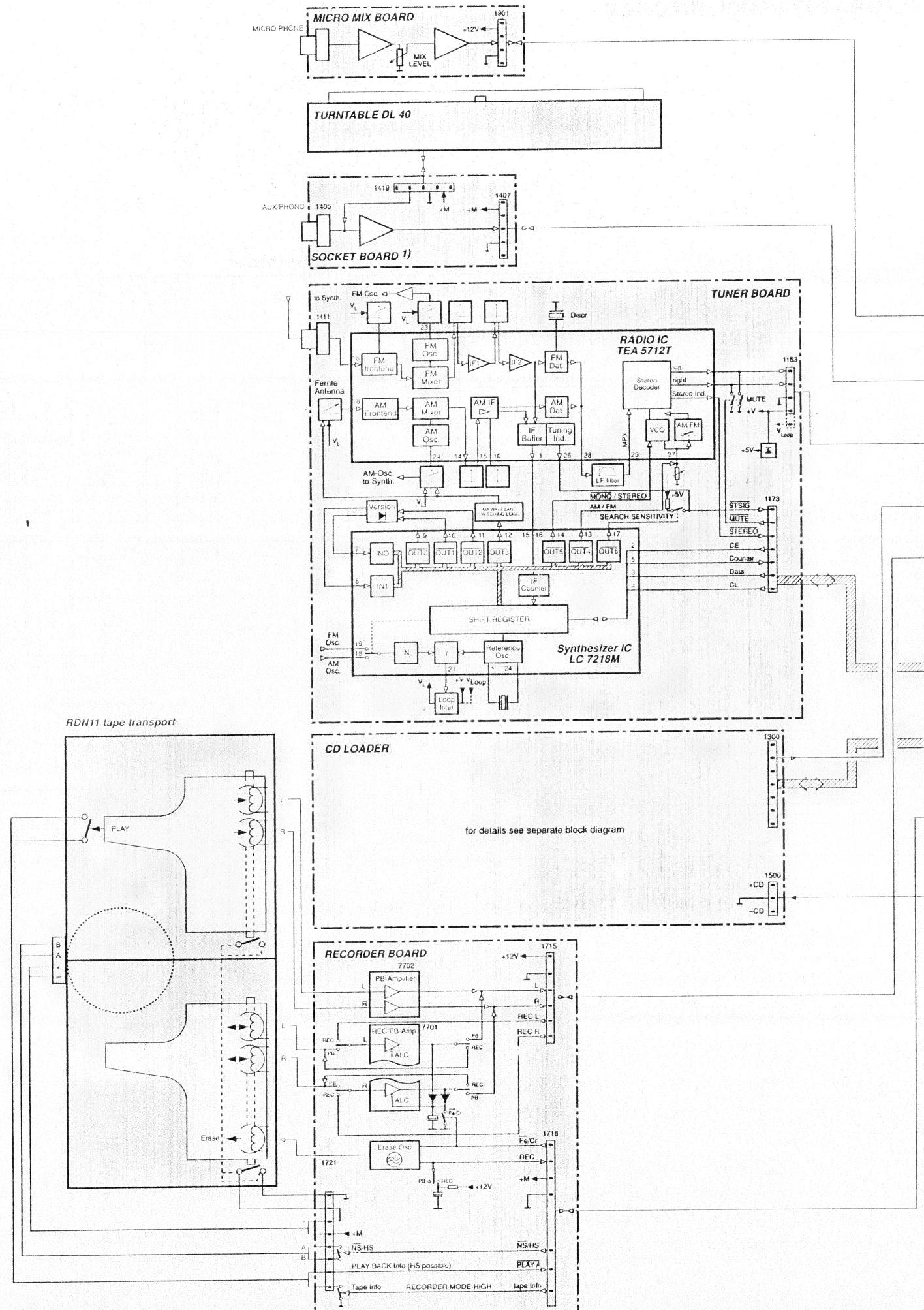
1) key not available in all versions.

## WIRING DIAGRAM

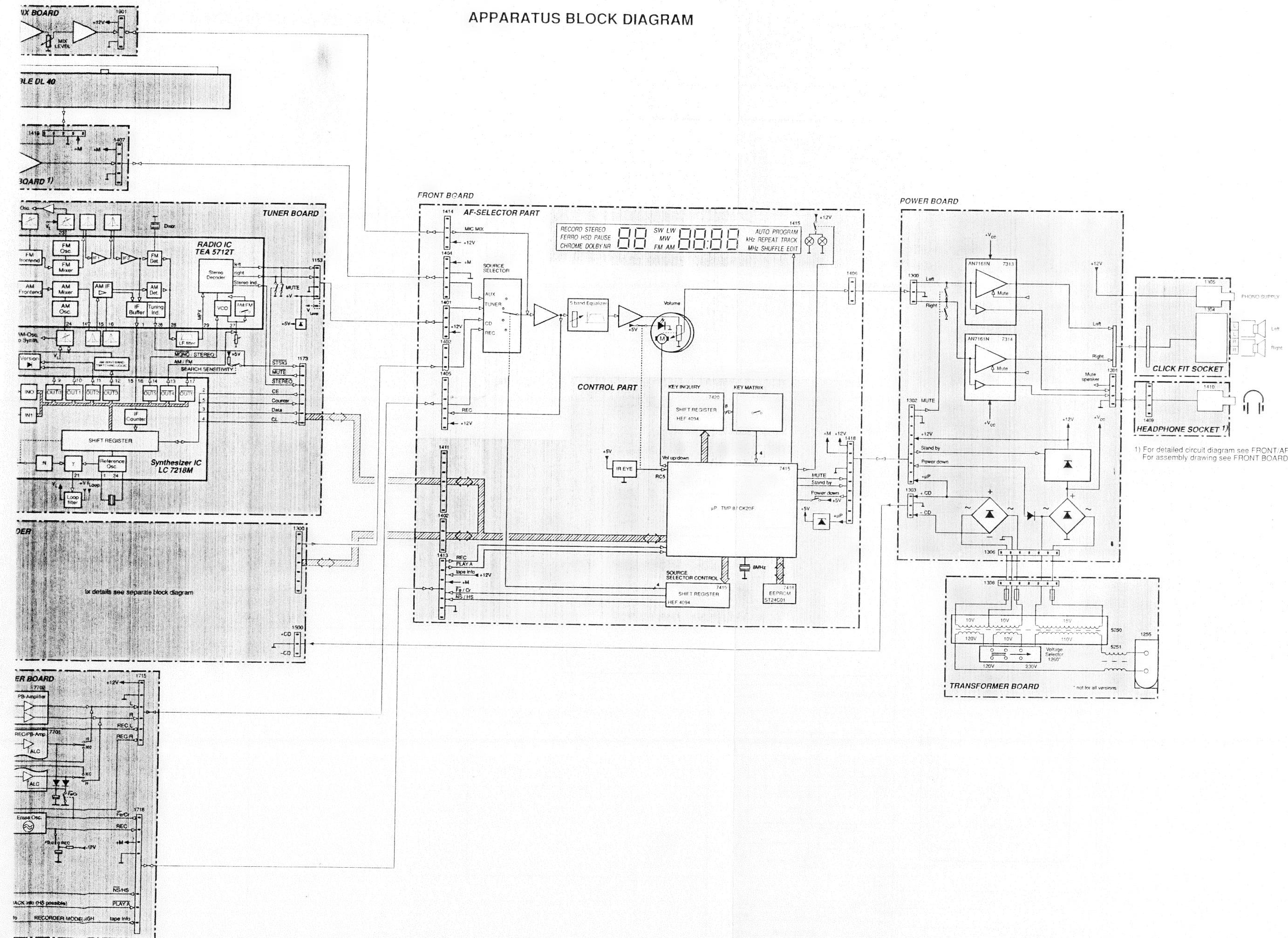


### RDN11 TAPE TRANSPORT (top view)

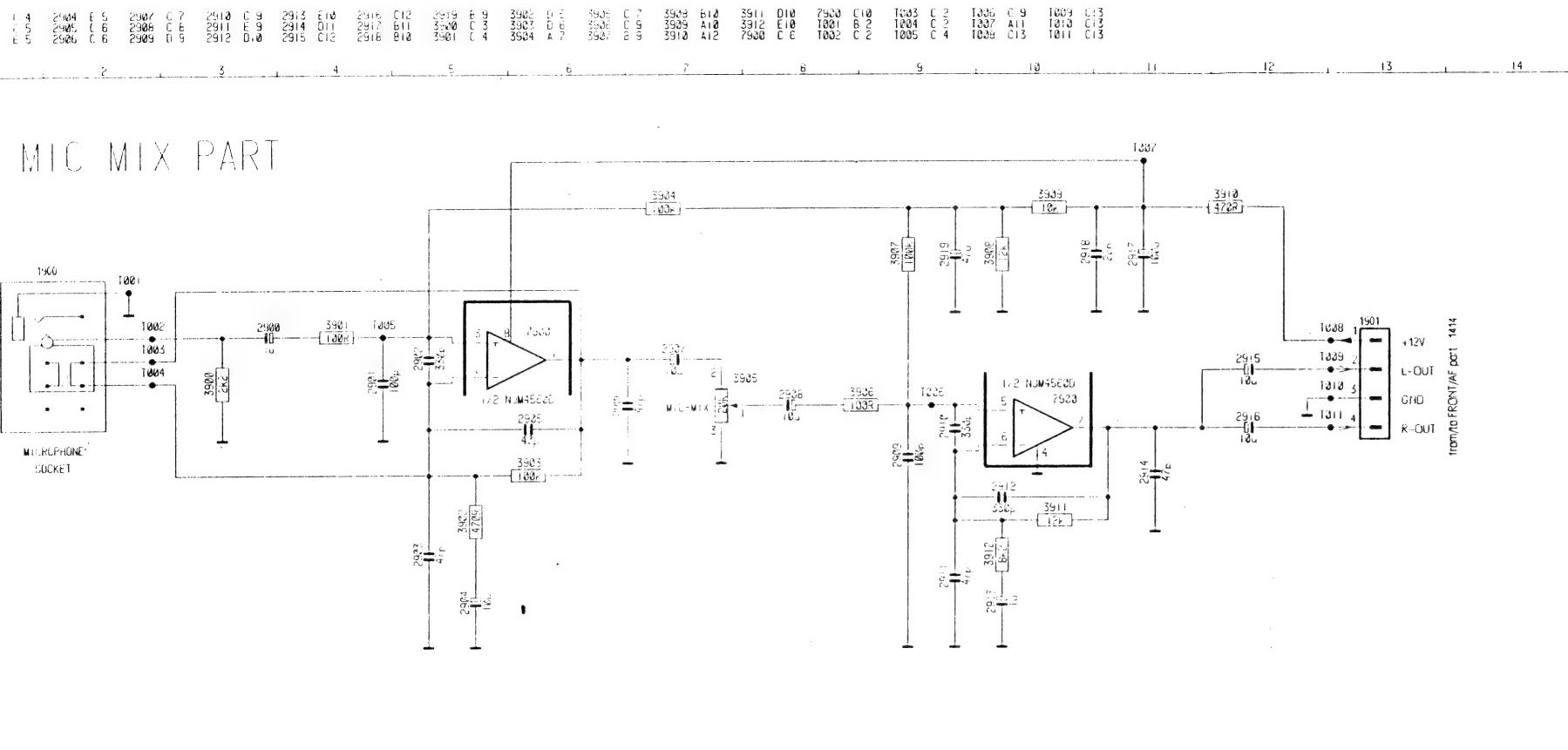




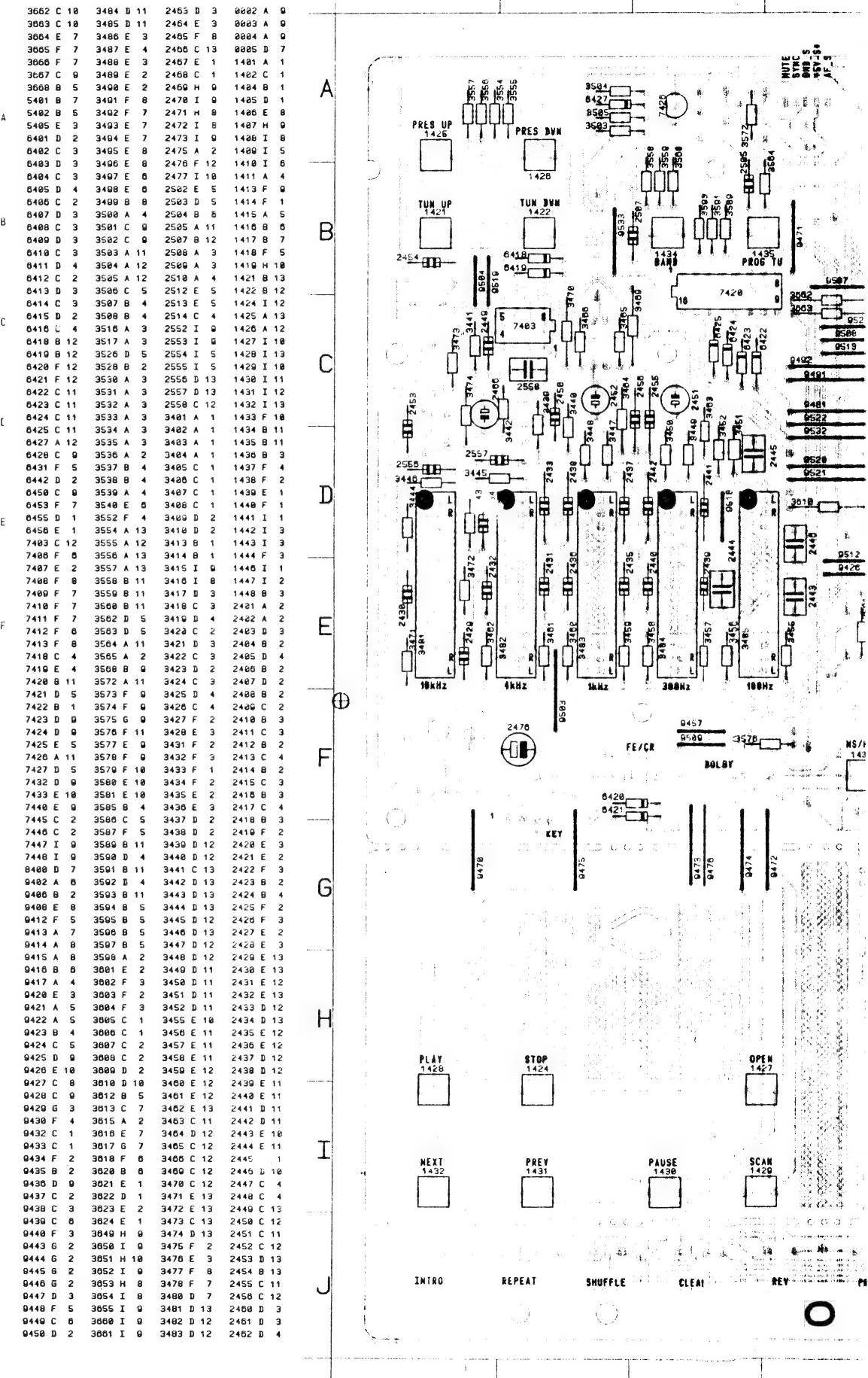
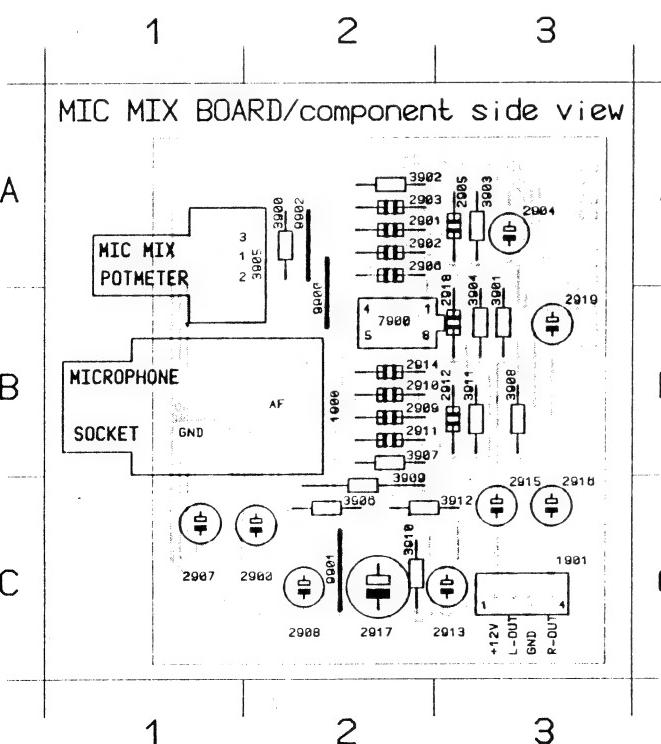
## APPARATUS BLOCK DIAGRAM

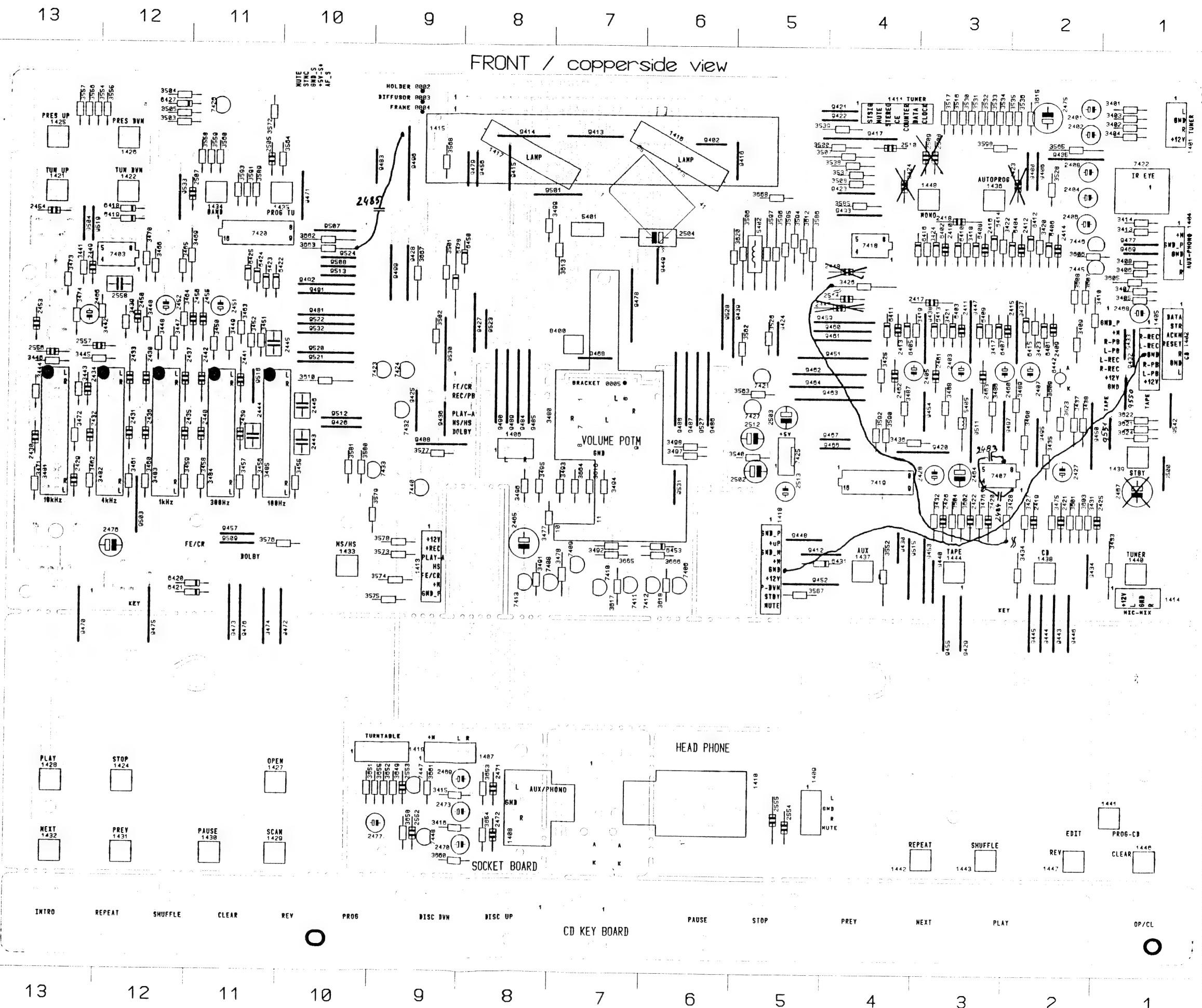


**Micro Mix only in versions with Record Player**



1900	B	1	2005	A	3	2012	B	3	2019	B	3	3000	C	2	7000	B	2
1901	C	3	2006	A	2	2013	C	3	3000	A	2	3007	B	2	9000	B	2
2000	C	2	2007	C	1	2014	B	2	3001	B	3	3000	B	3	9001	C	2
2001	A	2	2008	C	2	2015	C	3	3002	A	2	3000	C	2	9002	A	2
2002	A	2	2009	B	2	2016	C	3	3003	A	3	3010	C	2			
2003	A	2	2010	B	2	2017	C	2	3004	B	3	3011	B	3			



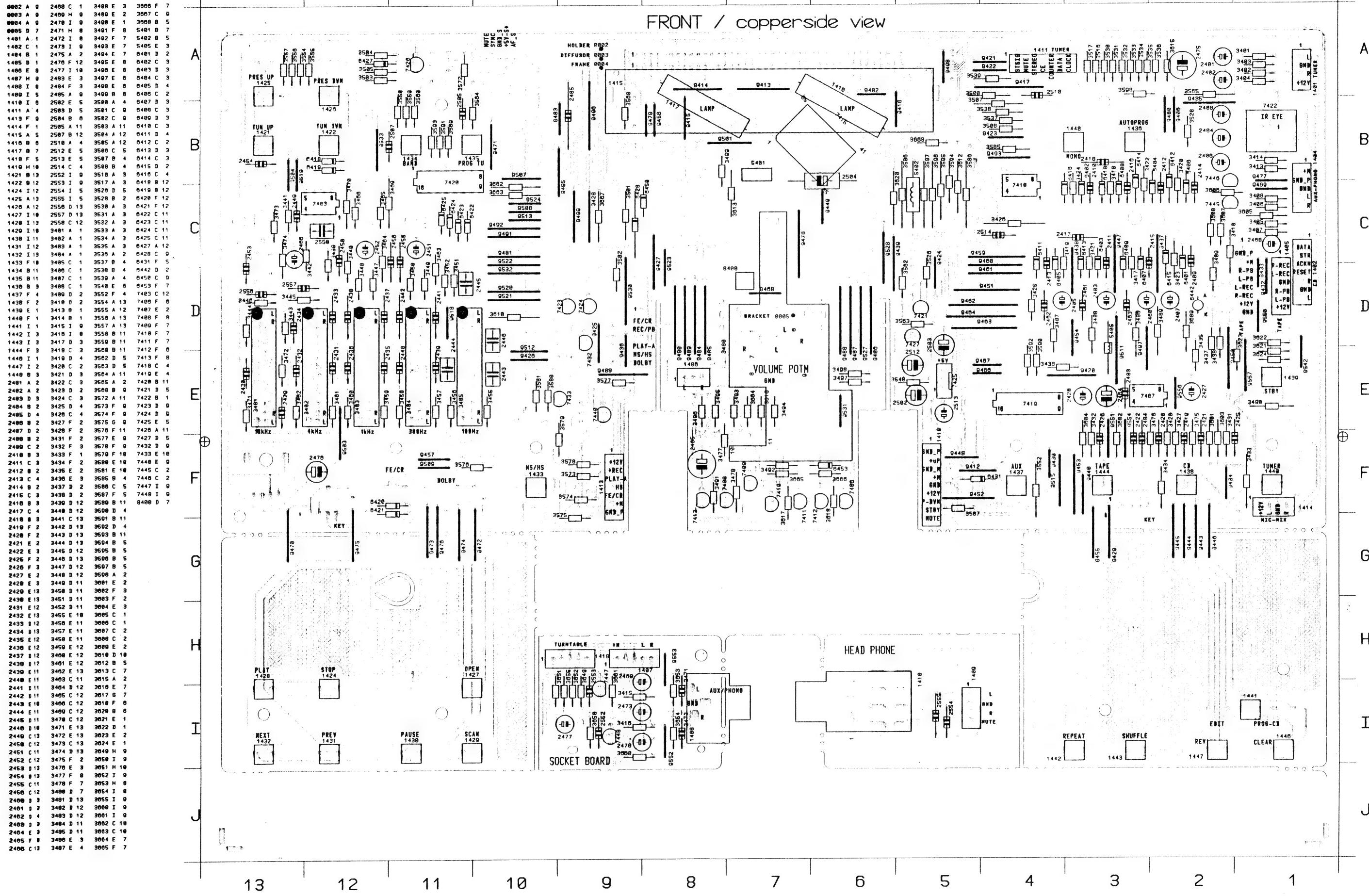


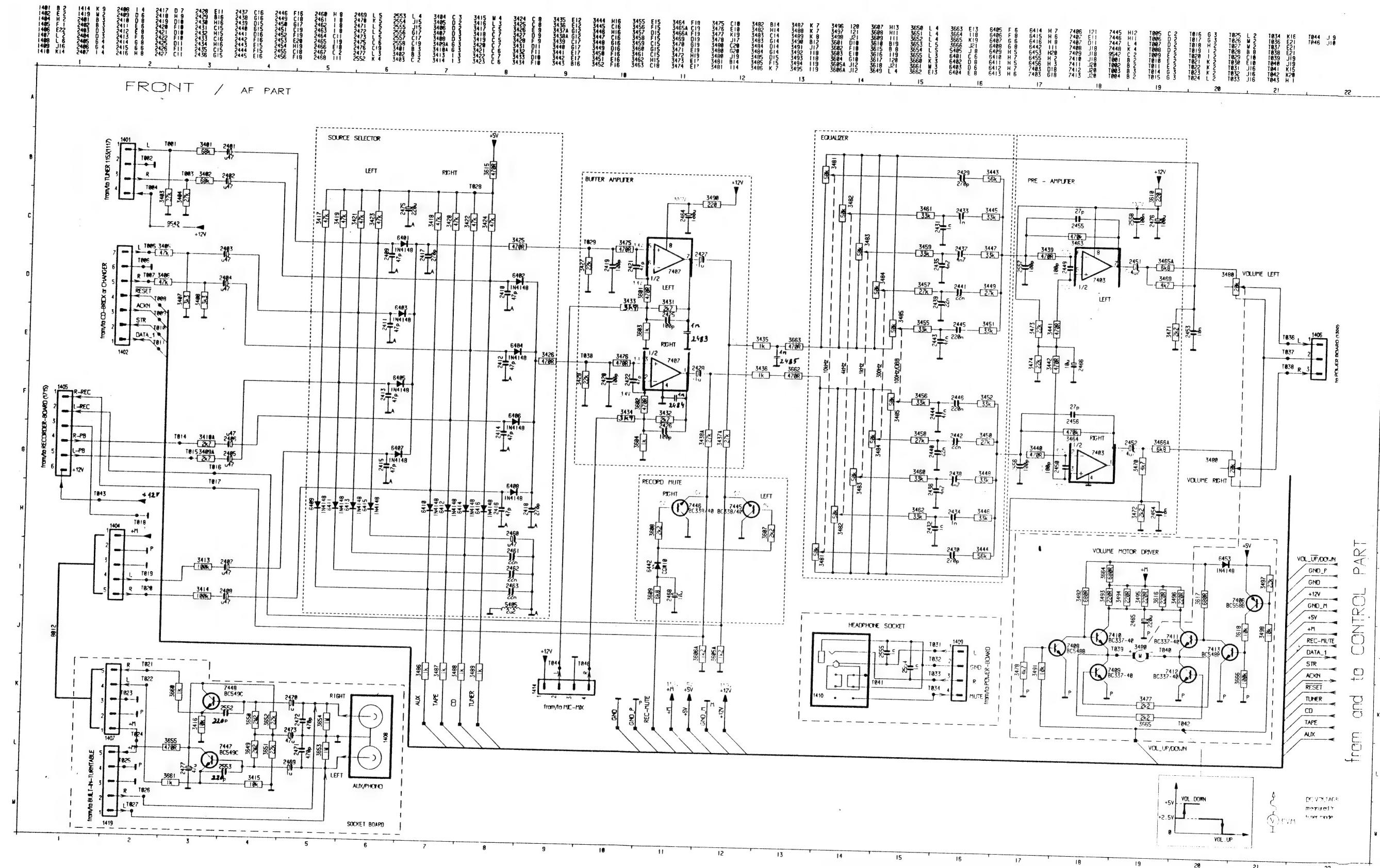
frontiers part 144

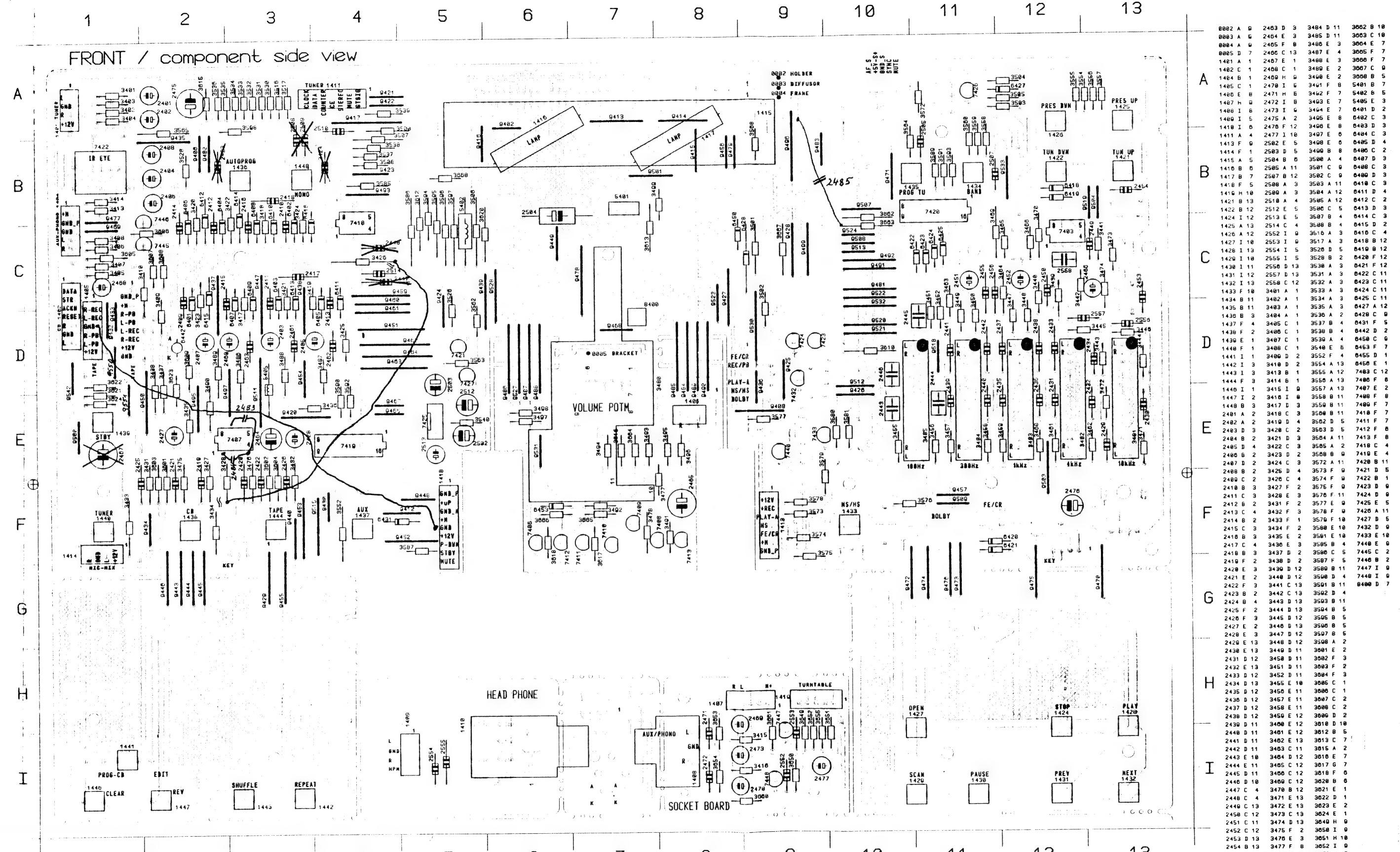
**valid for PCBs stage .3**

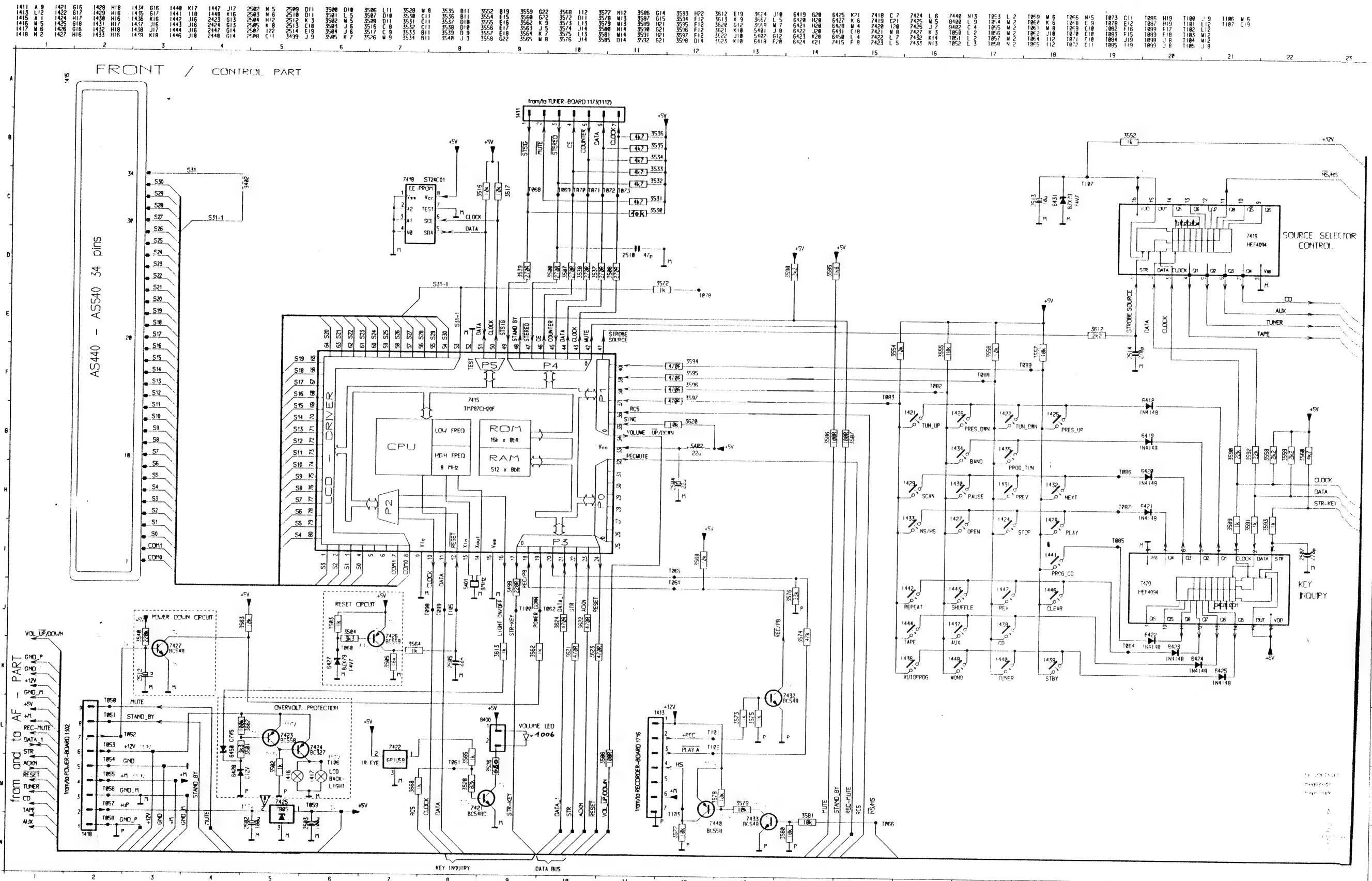
23-NEW

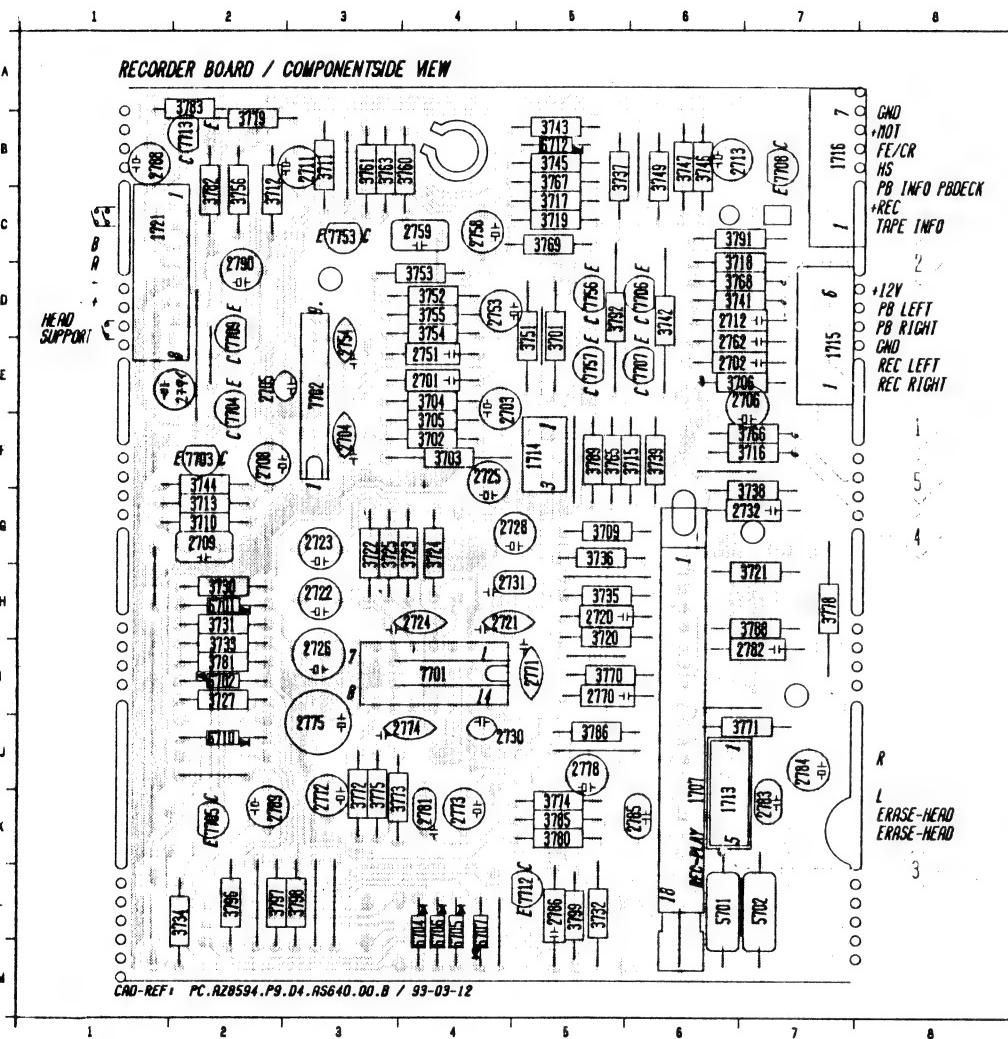
24-NEW











## RECORDER ADJUSTMENT TABLE

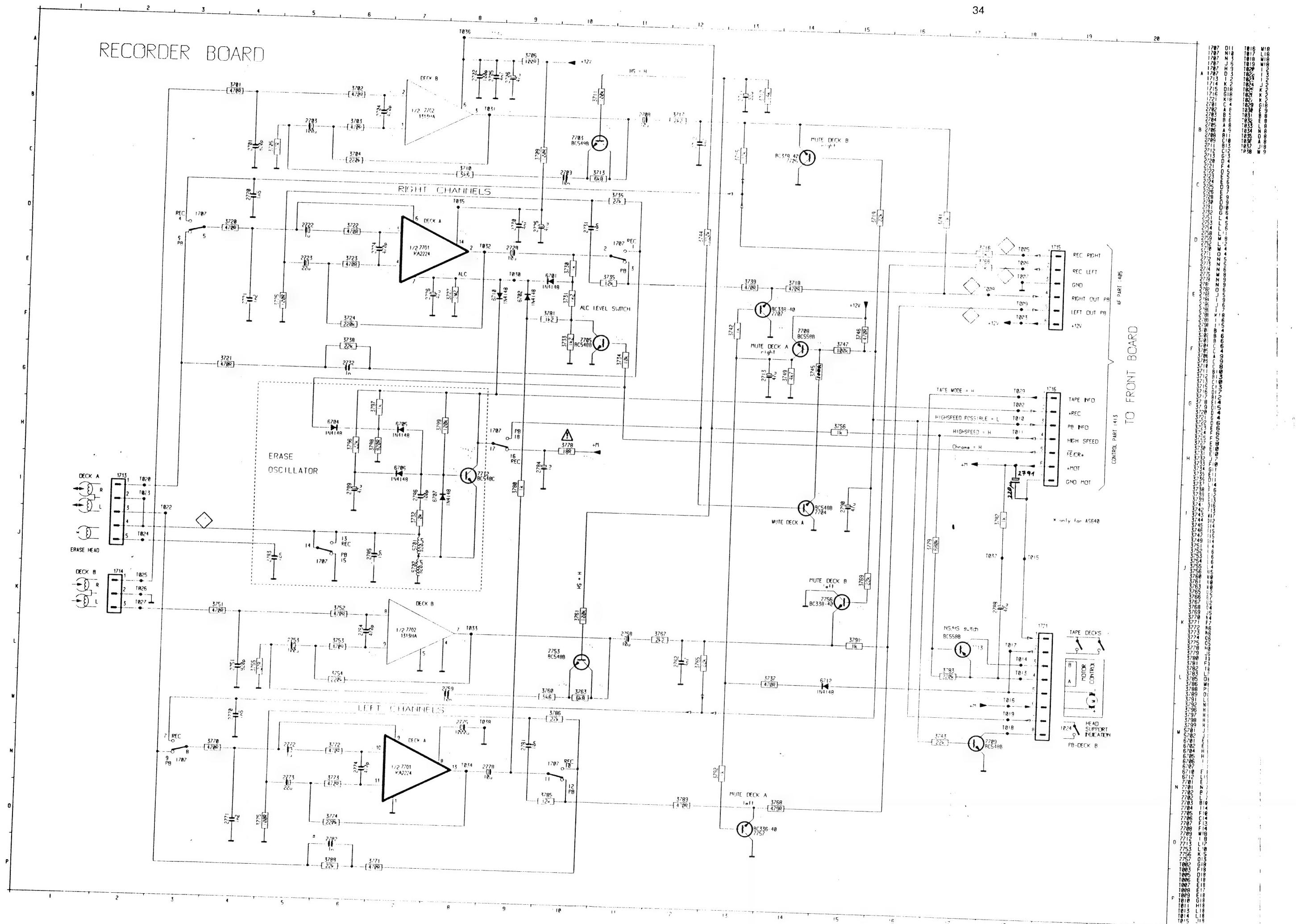
Adjustment	Cassette/Source	Recorder mode	Measure on	Read on	Adjust with to
Azimuth <sup>1)</sup>	SBC 420 8kHz	PLAY A-Deck PLAY B-Deck	① ② or Phone socket	mV - meter	left-hand screw maximum output left = right
Motor speed <sup>2)</sup>					
Normal speed	SBC 420 3150Hz	PLAY A + B-Deck HS-Dubbing	① ② or Phone socket	Wow and Flutter meter or Counter	pot on motor 0±1%
High speed <sup>4)</sup>				Counter	check only 5556-5783Hz

## CHECK ONLY

Check	Cassette/Source	Recorder mode	Measure on	Read on	Check if
Wow and Flutter	SBC 420 3150Hz	PLAY A or B-Deck PLAY A and B-Deck	① ② or Phone socket	Wow and Flutter meter	≤ 0,3% weighted ≤ 0,35% weighted
Erase Oscillator					
Voltage	any	REC A-deck	③ Erase head	mV - meter Counter	Cr ≥ 9,8Vrms Fe ≥ 20,8 Vrms
Frequency					f = 60kHz ± 5kHz
Playback level <sup>3)</sup>	SBC420 315Hz 0dB level	PLAY A-Deck <sup>5)</sup> PLAY B-Deck <sup>5)</sup>	① ②	mV - meter	41 mV - 57 mV 41 mV - 57 mV
Frequency response					
Playback	SBC420	PLAY A or B-Deck <sup>5)</sup>	① ②	mV - meter	125 Hz - 10 kHz within 8dB
Overall	Level = 0,5mV	REC A-Deck <sup>5)</sup> PLAY A-Deck <sup>5)</sup>	④ ⑤	mV - meter	125 Hz - 10 kHz within 8dB 125 Hz - 8 kHz dubbing
Distortion	SBC 420 Level = 10mV	REC A-Deck <sup>5)</sup> PLAY A-Deck <sup>5)</sup>	④ ⑤	mV - meter	50 mV ± 10 mV, D ≤ 5%

SBC 420 Service code: 4822 397 30071

- 1) For Azimuth adjustment set need not to be dismantled. Remove ornamental part of cassette door and put screwdriver (torx5) through holes of cassette door.
- 2) Absolute difference between deck A and deck B have to be ≤2%.
- 3) Noise level in "PAUSE" should be 80 - 180µV (A-weighted).
- 4) Insert SBC420 in A-Deck and use High speed dubbing mode to check frequency.
- 5) Recorder has to be in Fe- Mode

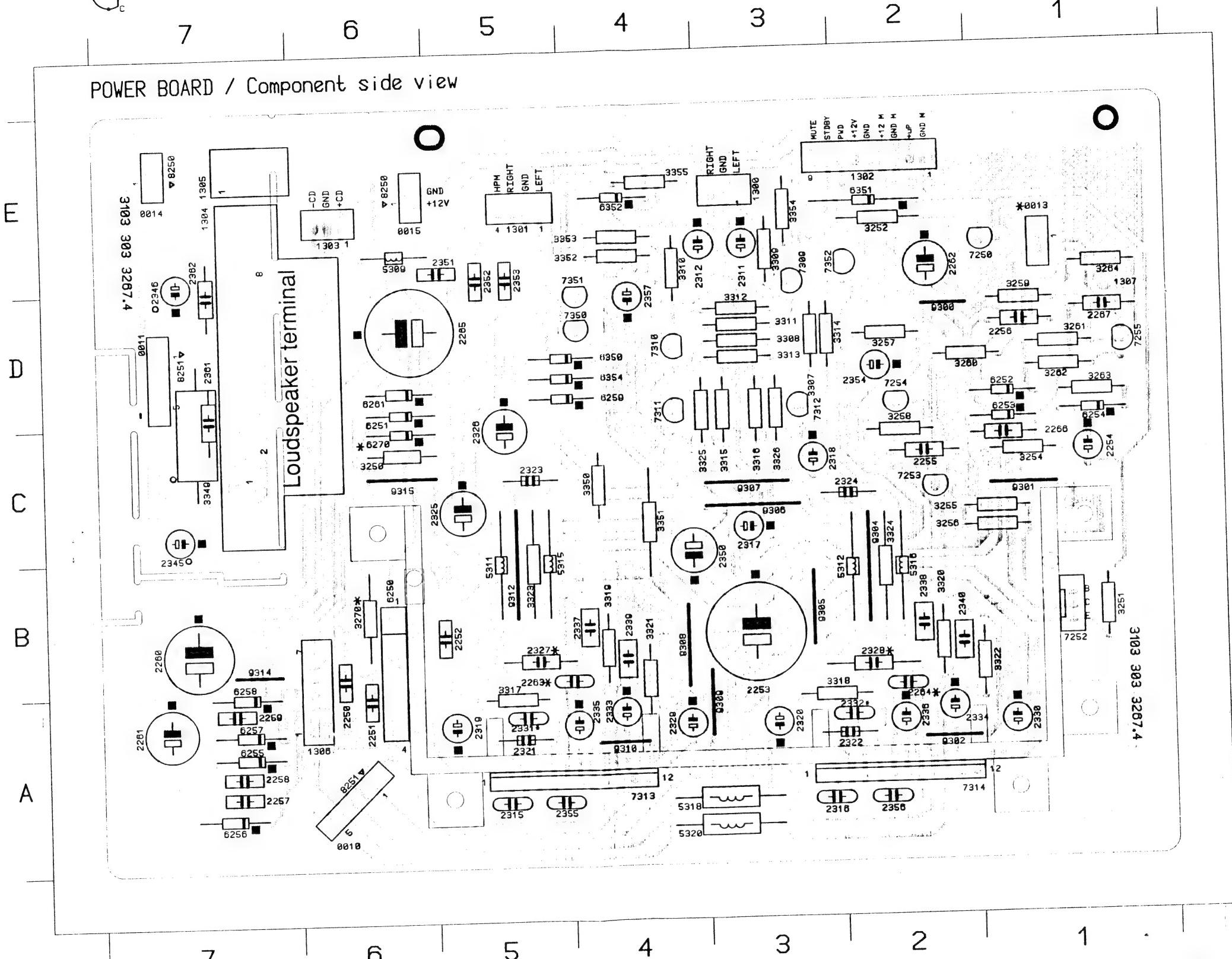


FOR ALL TRANSISTORS

\* NOT USED COMPONENTS

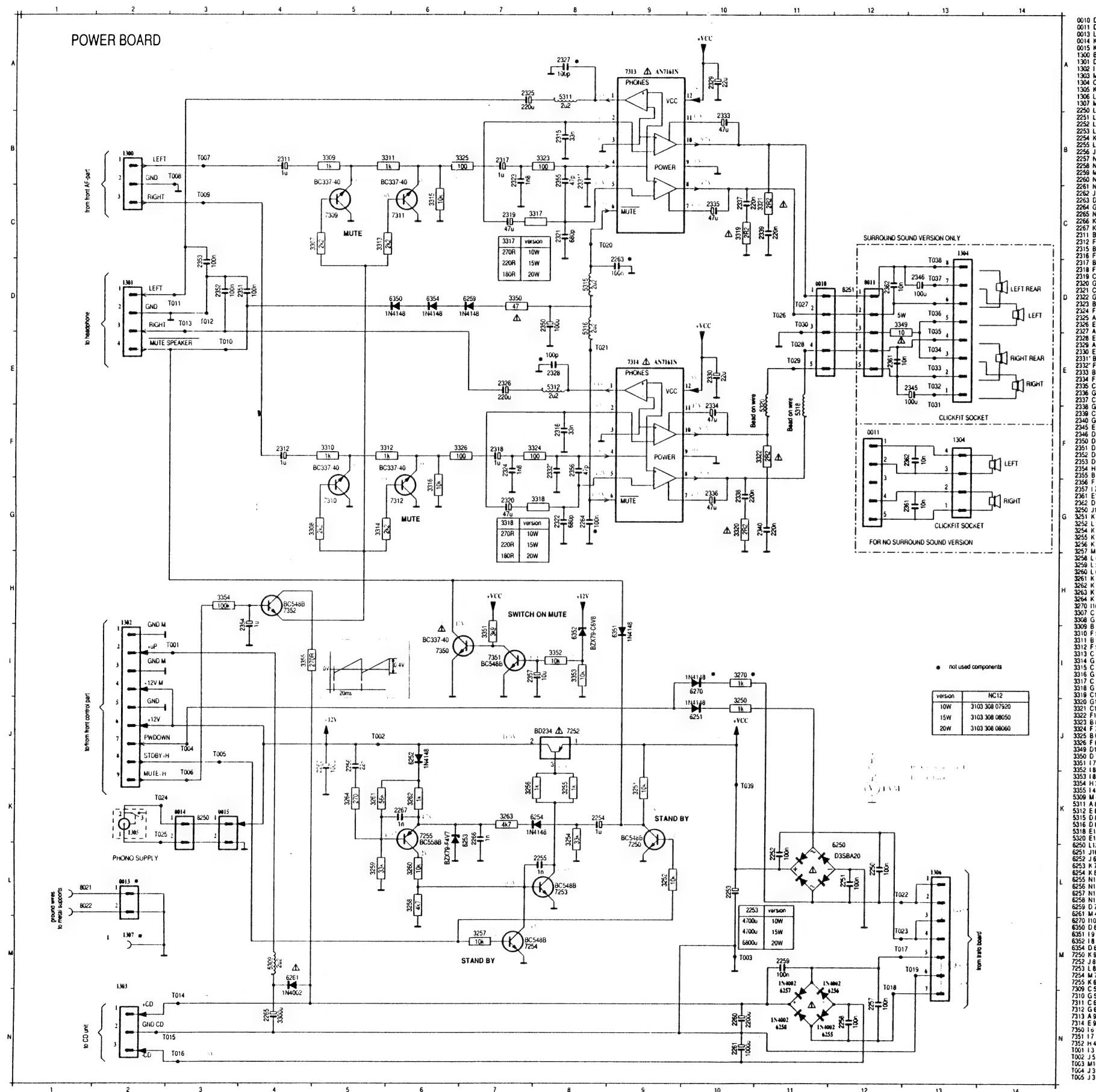
◦ FOR SURROUND ONLY

## POWER BOARD / Component side view



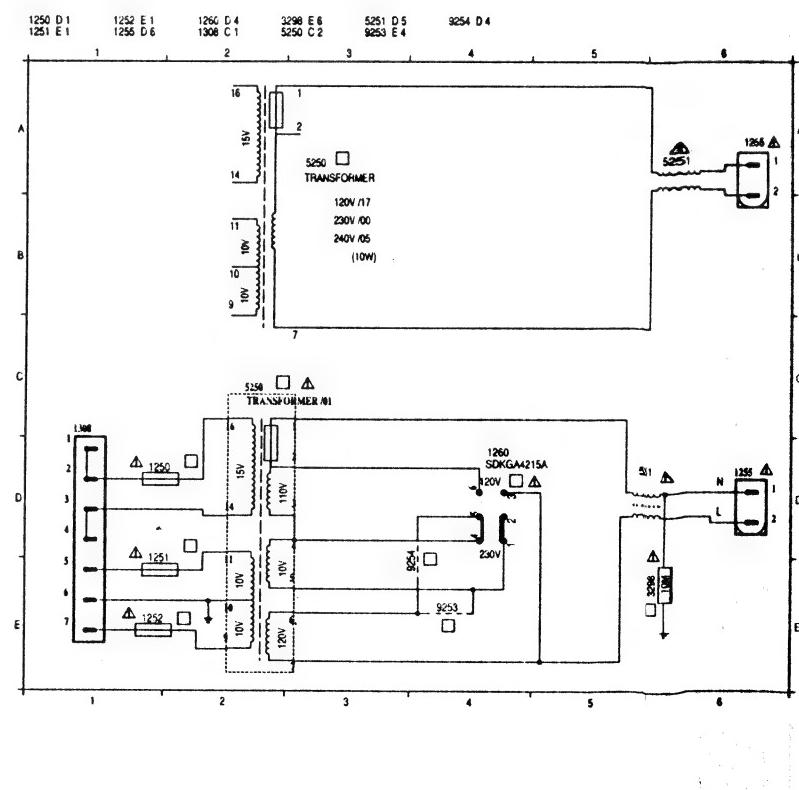
9304	B	2	7310	D	4	6270	C	6	6250	B	6	3352	E	4	3319	B	4	3308	D	3	3250	C	1	2354	D	2	2355	A	1	2324	C	2	2311	E	3	2257	A	7	1304	D	7
9302	A	2	7309	D	3	6261	D	6	5320	A	3	3351	C	4	3318	A	3	3307	D	3	3255	C	1	2353	E	5	2335	A	4	2324	C	2	2267	D	1	2256	D	1	1303	E	8
9301	C	1	7255	D	1	6259	D	5	5318	A	3	3350	C	4	3317	A	5	3270	B	6	3254	C	1	2352	E	5	2334	A	2	2323	C	5	2267	D	1	2255	C	2	1302	E	2
9300	D	2	7254	D	2	6258	A	7	5318	B	2	3349	C	7	3318	D	3	3264	E	1	3252	E	2	2351	E	5	2333	A	4	2322	A	2	2268	C	1	2255	C	2	1301	E	5
7352	E	2	7253	C	2	6257	A	7	5315	B	5	3328	D	3	3315	D	3	3263	D	1	3251	B	1	2350	C	4	2332*	A	2	2321	A	5	2265	D	6	2254	C	1	1301	E	5
7351	D	4	7252	B	1	6256	A	7	5312	B	2	3325	D	3	3314	D	3	3262	D	1	3250	C	6	2348	E	7	2331*	A	5	2320	A	3	2264	A	2	2253	B	3	1300	E	3
7350	D	4	7250	E	1	6255	A	7	5311	B	5	3324	B	2	3313	D	3	3261	D	1	2362	D	7	2345	C	7	2330	A	1	2319	A	5	2263	B	4	2252	B	5	0015	E	6
7314	A	2	6354	D	5	6254	D	1	5309	E	6	3323	B	5	3312	D	3	3260	D	2	2361	D	7	2340	B	2	2329	A	4	2318	C	3	2262	E	2	2251	A	6	0014	E	7
7313	A	5	6352	E	4	6253	C	1	3355	E	4	3322	B	1	3311	D	3	3259	D	1	2357	D	4	2339	B	4	2328	B	2	2317	C	3	2261	A	7	2250	B	6	0013	E	1
7312	D	3	6351	E	2	6252	D	1	3354	E	3	3321	B	4	3310	E	4	3258	C	2	2356	A	2	2338	B	2	2327	B	5	2316	A	3	2260	B	7	1307	E	1	0011	D	7
7311	D	4	6350	D	5	6251	D	6	3353	E	4	3320	B	2	3309	E	3	3257	D	2	2355	A	5	2337	B	4	2326	C	5	2315	A	5	2259	A	7	1306	B	6	0010	A	6

# TRANSFORMER BOARD

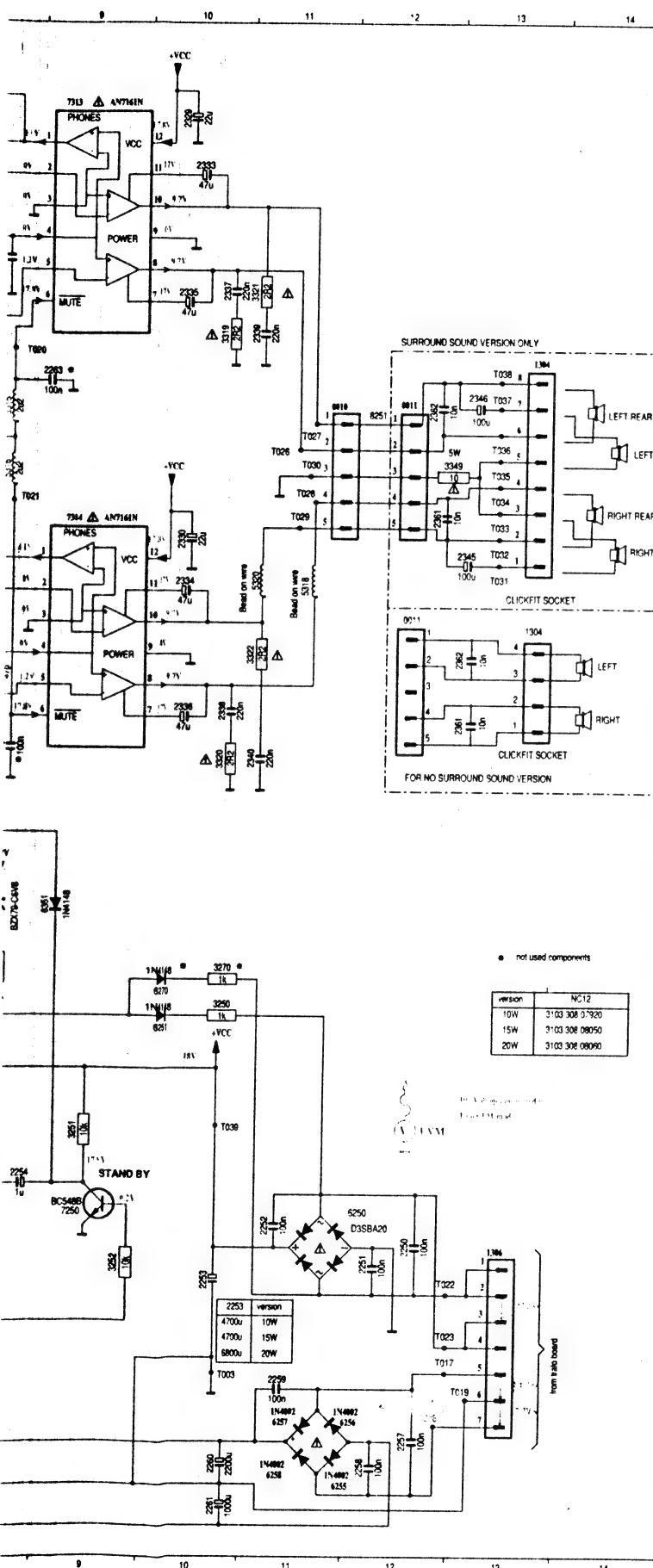


COMPONENTS DEPENDING ON THE VERSION						
VERSION	COMPONENTS					VALUE OF FUSE
	1208	9253	9254	5258	208	
/88 (IEC 238V)				/88	SA	630mA 630mA
/85 <sup>1)</sup> (248V)	X			/81	SA	630mA 630mA
/17 (UL 128V)				/17	X 6,3A	1,25A 1,25A
/81 /18 (128V, 238V)	X	X		/81	SA	630mA 630mA
/85 <sup>1)</sup> (248V)				/85	SA	630mA 630mA

1) For 15W and 20W versions /81 transformer  
for 10W version /85 transformer



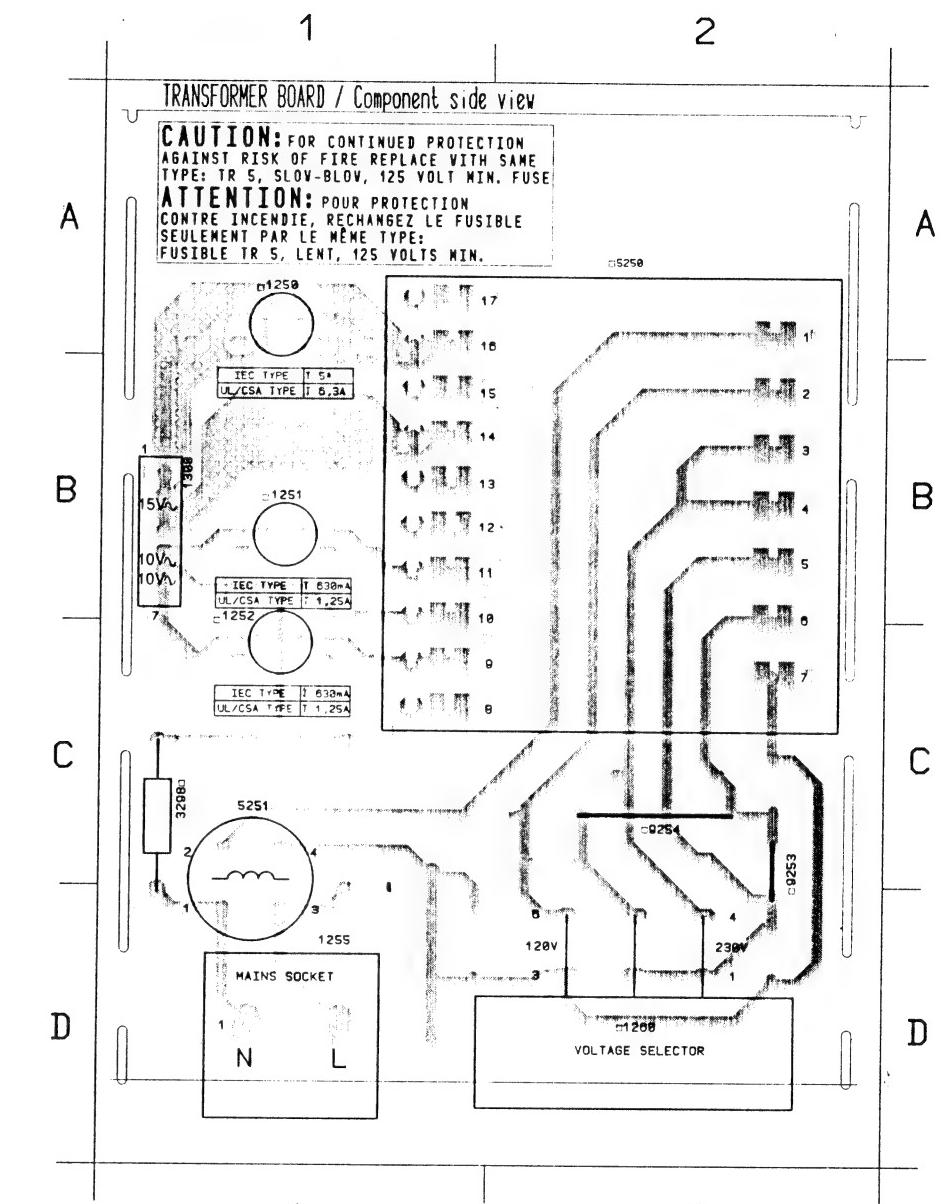
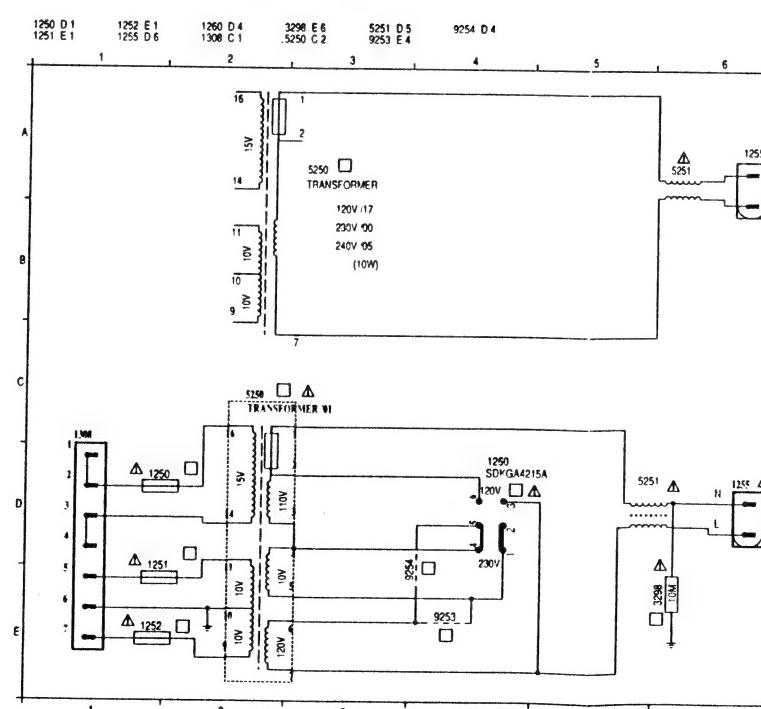
## **TRANSFORMER BOARD**



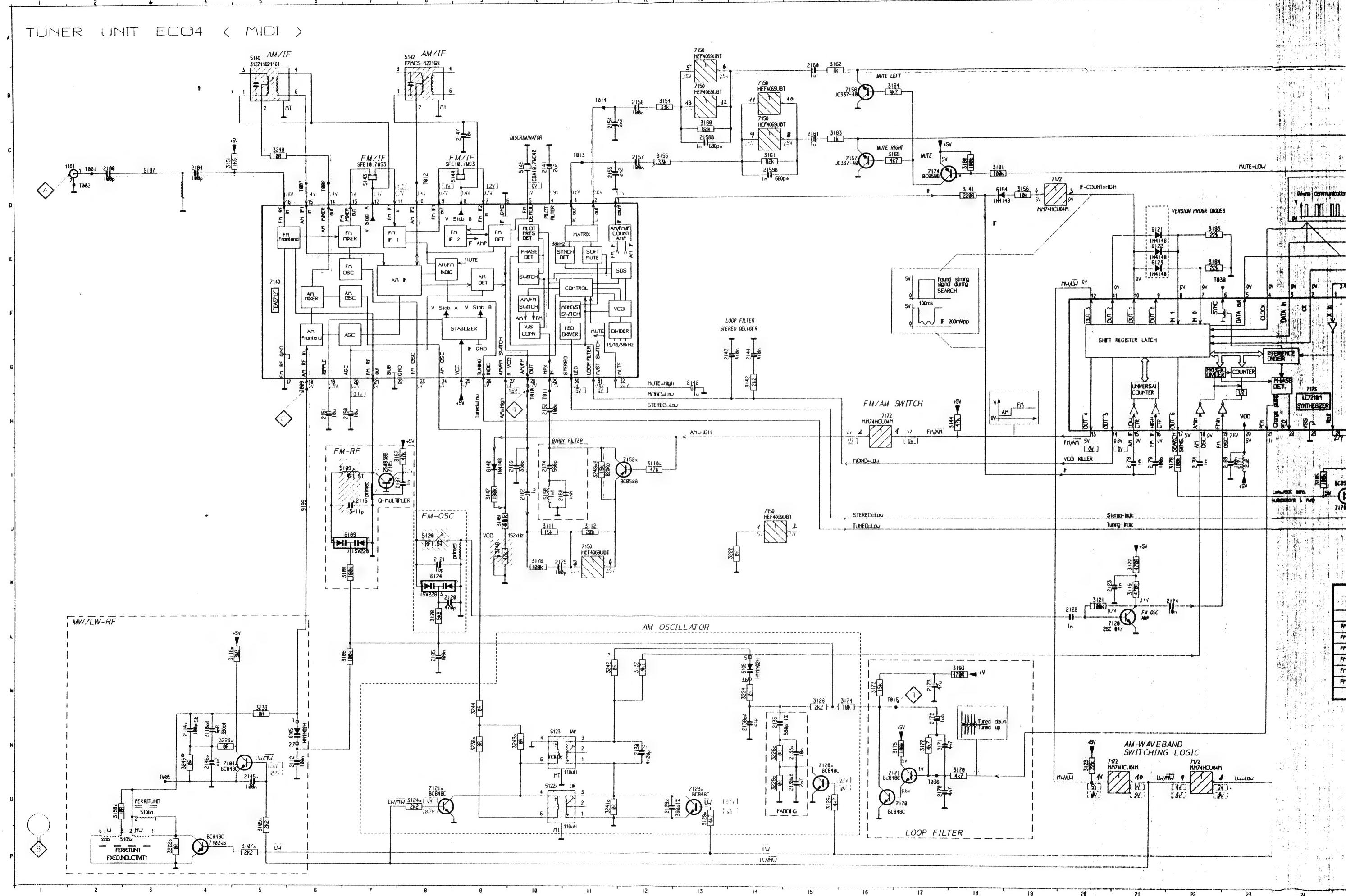
#### □ COMPONENTS DEPENDING ON THE VERSION

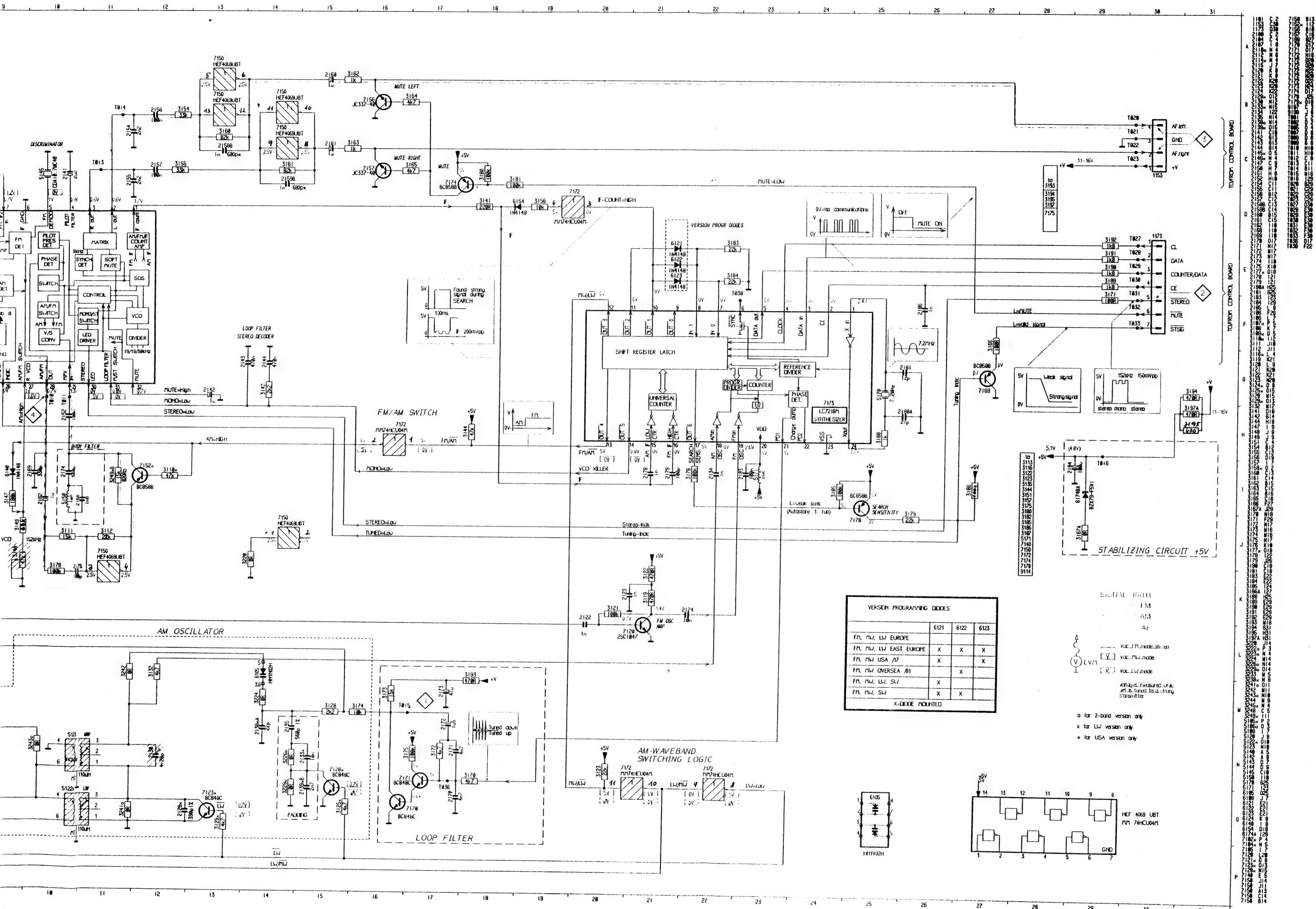
COMPONENTS					VALUE OF FUSE				
VERSION		1266	9253	9254	5250	3288	1258 (1254)	1251 (1253)	1252 (1256)
/00	(IEC 238V)				/00		SA	630mA	630mA
/05 <sup>1)</sup>	(248V)		X		/81		SA	630mA	630mA
/17	(UL 128V)				/17	X	6.3A	1.25A	1.25A
/01 / 10	(128V, 238V)	X		X	/81		SA	630mA	630mA
/05 <sup>1)</sup>	(248V)				/85		SA	630mA	630mA

1) For 15W and 28W versions /81 transformer  
for 18W version /85 transformer

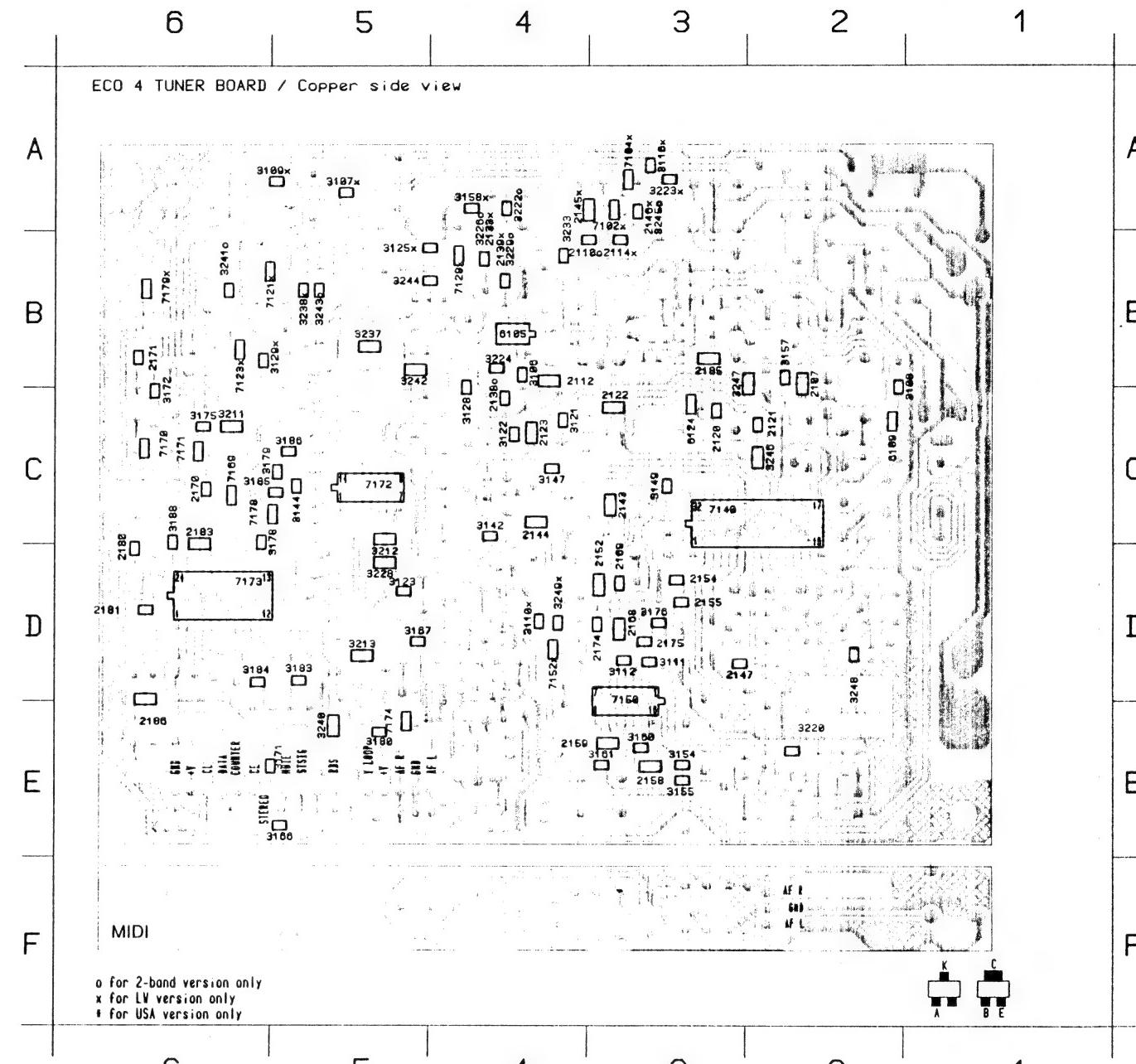
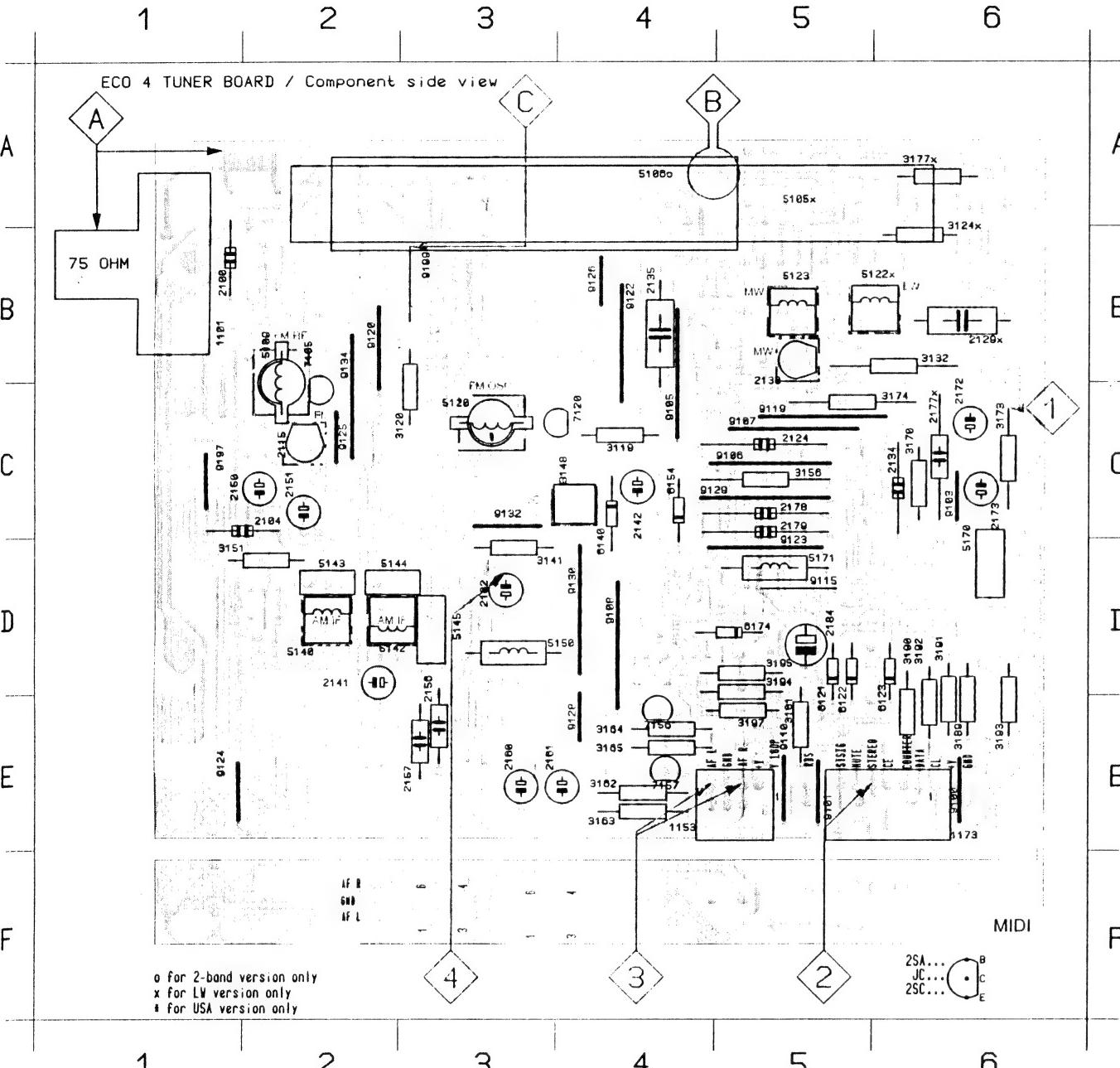


TUNER UNIT ECO4 < MIDI >





1101	B	1	2134	C	6	2101	E	4	3120	B	3	3164	E	4	3191	D	6	5120	C	3	5170	D	6	7120	C	4	9108	D	4	9126	B	4
1153	E	5	2135	B	4	2102	D	3	3124	B	6	3165	E	4	3192	D	6	5122	B	5	5171	D	5	7150	E	4	9110	E	5	9128	D	4
1173	E	6	2141	D	2	2172	C	6	3132	B	5	3170	C	6	3193	E	6	5123	B	5	6121	D	5	7157	E	4	9115	D	5	9129	C	6
2108	A	1	2142	C	4	2173	C	6	3141	D	3	3173	C	6	3194	D	4	5140	D	2	6122	D	5	9160	E	6	9119	C	5	9138	D	4
2104	C	1	2150	C	2	2177	X	6	3148	C	3	3174	C	5	3195	D	4	5142	D	3	6123	D	6	9161	E	5	9120	C	2	9132	C	3
2115	C	2	2151	C	2	2178	C	4	3151	D	1	3177	X	6	3197	E	4	5143	D	2	6140	D	4	9183	C	6	9122	B	4	9134	C	6
2124	C	4	2156	D	3	2179	C	4	3156	C	4	3181	D	5	5105	X	4	5144	D	2	6154	C	4	9185	C	4	9123	D	4	9197	C	1
2120x	B	6	2157	E	3	2184	D	5	3162	E	4	3169	D	6	5186	A	4	5145	D	3	6174	D	4	9186	C	4	9124	E	1	9199	B	3
2130	B	5	2160	E	3	3119	C	4	3183	E	4	3190	B	6	5189	C	2	5158	D	3	7185	C	2	9187	C	5	9125	C	2			



**TUNI**

---

VARI

---

**FM /0**

---

87..

---

**FM /1**

---

65..

---

**MW /**  
2-band  
53C

---

**LW /0**

---

153

---

**MW /**

---

522

---

**FM -**

---

**FM /0**

---

**FM /1**  
Eas

---

VCO

---

**FM**

---

**AM -**

---

**MW**

---

**AM -**

---

**LW**

---

**MW /**  
3-t

---

**MW /**  
2-t

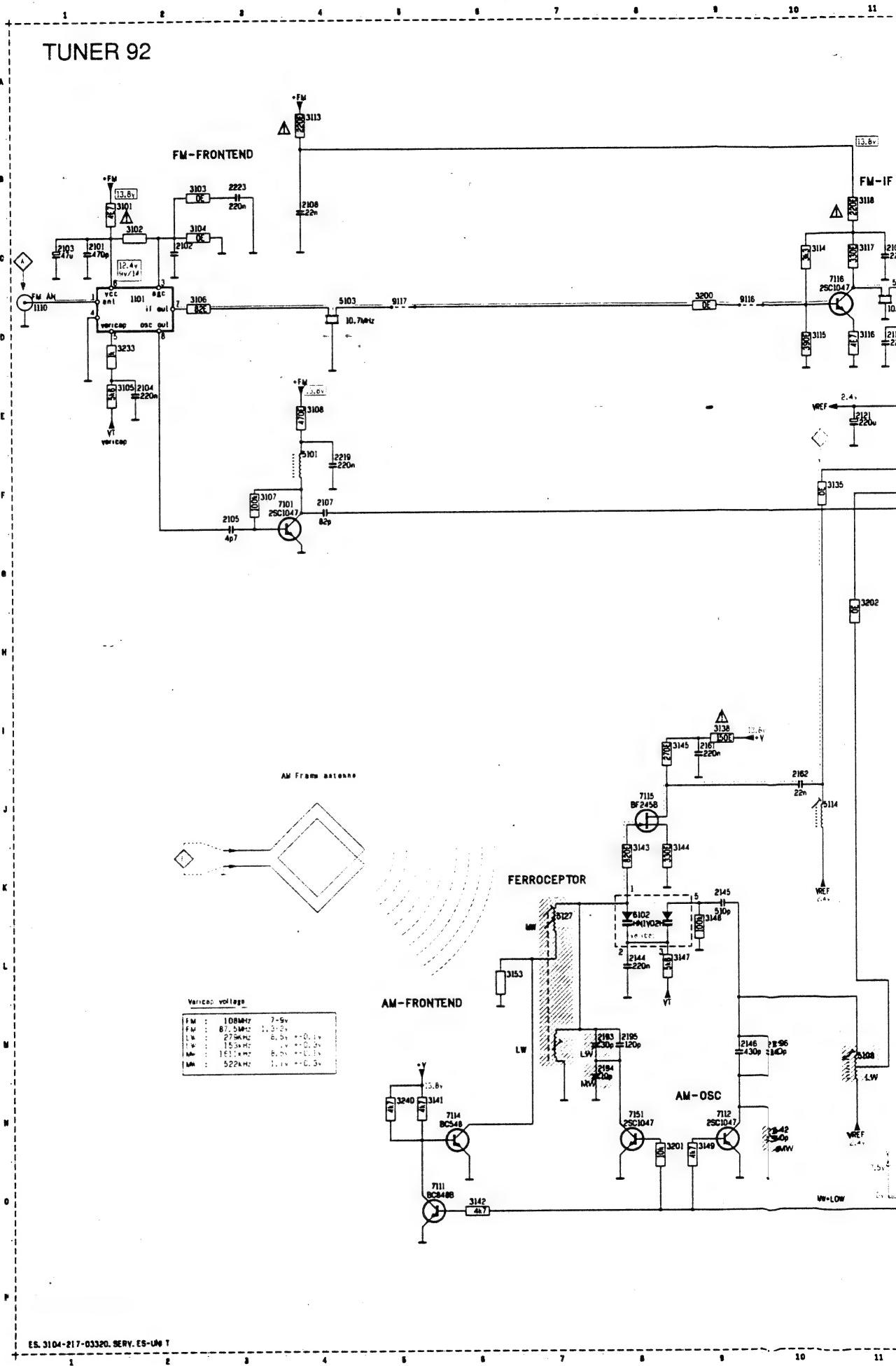
**TUNER Adjustment table ( ECO 4 FM/MW- and FM/MW/LW - versions with AM-ferrite antenna )**

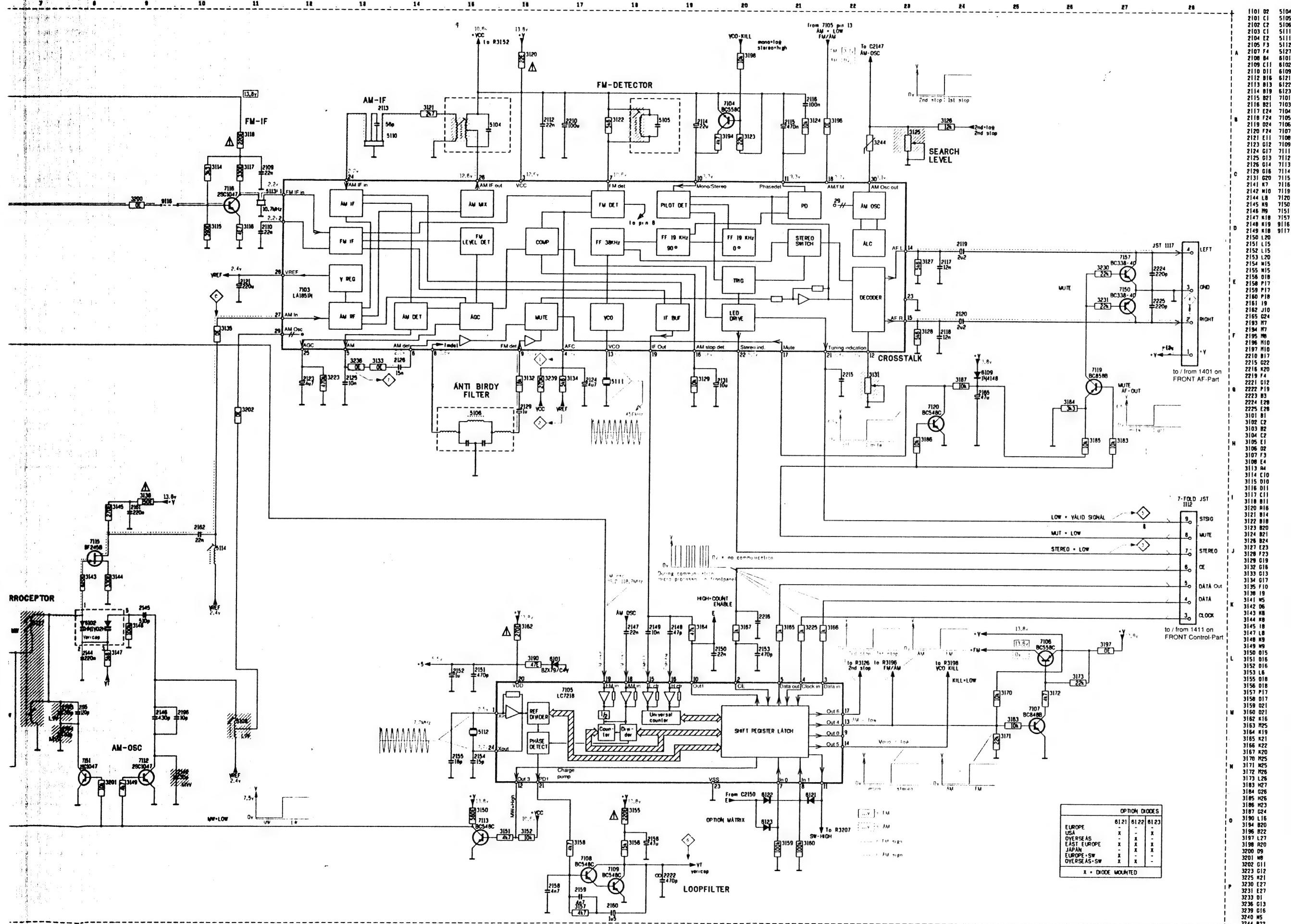
Waverange	Input frequency	Input	Set tuned to	Adjust	Output	Scope / Voltmeter
<b>VARICAP ALIGNMENT <sup>1)</sup></b>						
FM /00/01/05/10/17 87.5 - 108MHz			108 MHz	5120		8V ± 0.2V
			87.5MHz	check		4.1V ± 0.5V
FM /14 East Europe 65.81 - 108MHz			108 MHz	5120		8V ± 0.2V
			65.81 MHz	check		0.8V ± 0.4V
MW /01/17 2-band version, 10kHz grid 530 - 1710kHz			1710kHz	5123	1	9V±0.1V (7.5±0.7V) <sup>1)</sup>
			530kHz	check		1V±0.4V (1.1±0.5V) <sup>1)</sup>
LW /00/05/10/14 153 - 279kHz			279kHz	5122		8V±0.2V (7.5±1.5V) <sup>1)</sup>
			153kHz	check		1V±0.4V (1.1±0.5V) <sup>1)</sup>
MW /00/05/10/14 522 - 1611kHz			1611kHz	5123		8V±0.1V (7.5±0.5V) <sup>1)</sup>
			522kHz	check		1V±0.4V (1.1±0.5V) <sup>1)</sup>
<b>FM - RF</b>						
FM /00/01/05/10/17	108MHz	A mod=1kHz Δf=22.5kHz	108MHz	2115	3	MAX
	87.5MHz		87.5MHz	5109		
FM /14 East Europe	108MHz		108MHz	2115		
	65.81MHz		65.81MHz	5109		
<b>VCO</b>						
FM	98 MHz, 1mV continuous wave	A	98MHz	3148	2	152kHz ± 1kHz
<b>AM - IF</b>						
MW	540kHz Δf = 10kHz as low as possible	100nF 50E C	540kHz	5142 5140	4	symmetrical and max height
<b>AM - RF</b>						
LW	198kHz	B' mod=1kHz 30% AM	198kHz	5122	4	MAX
MW /00/05/10/14 3-band version	1494kHz		1494kHz	2130		MAX
	549kHz		549kHz	5123		
MW /01/17 2-band version	1500kHz		1500kHz	2130		
	550kHz		550kHz	5123		

\* Use Service Test Program. By selecting the TUNER TEST, test frequencies will be stored as preset freq. automatically.

<sup>1)</sup> Adjustment of AM-RF stage influences the varicap voltage. Therefore check if varicap voltage fulfills value stated within brackets after AM-RF adjustment.

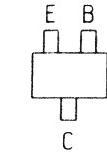
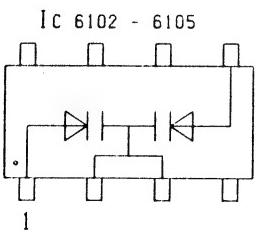
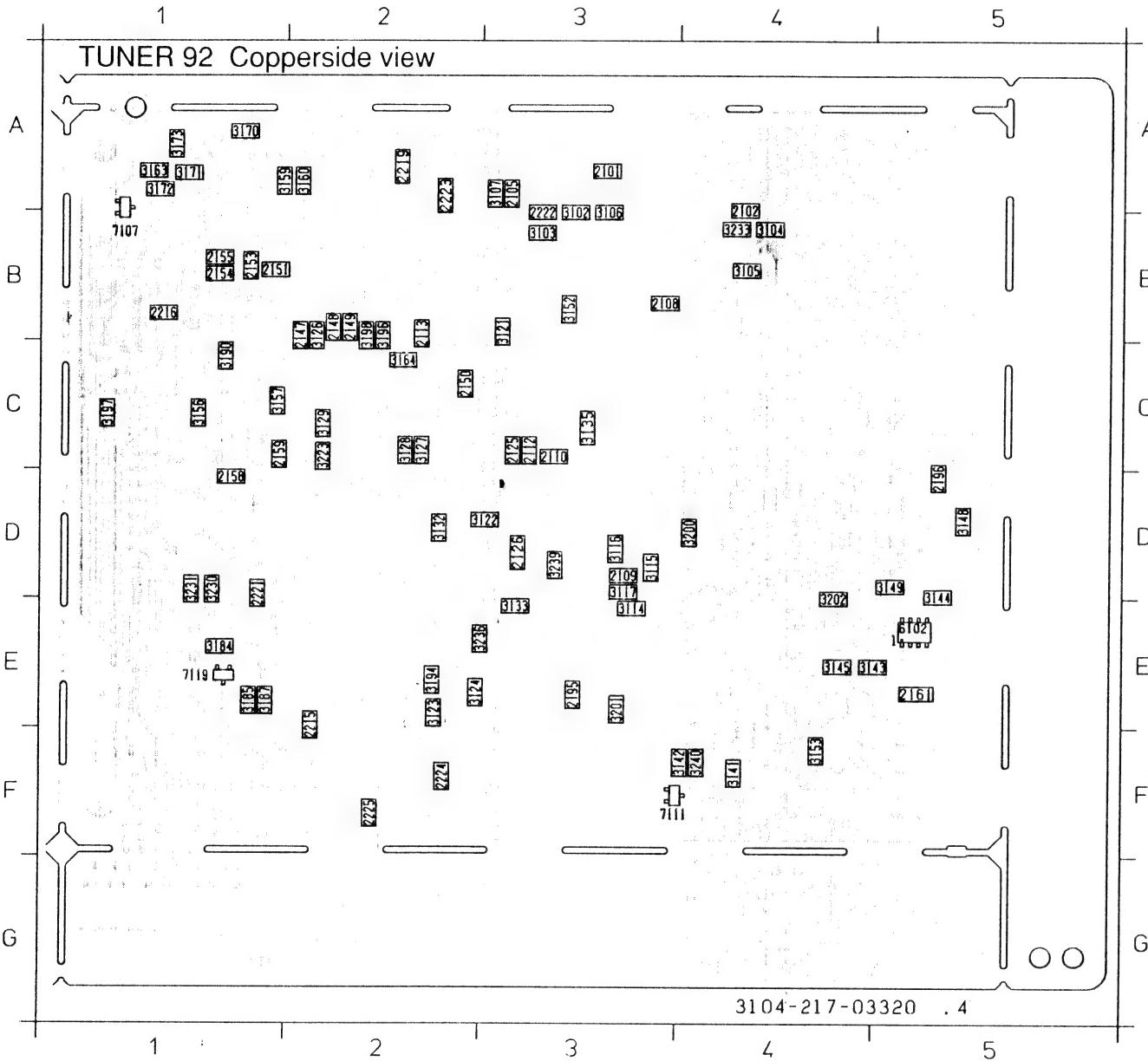
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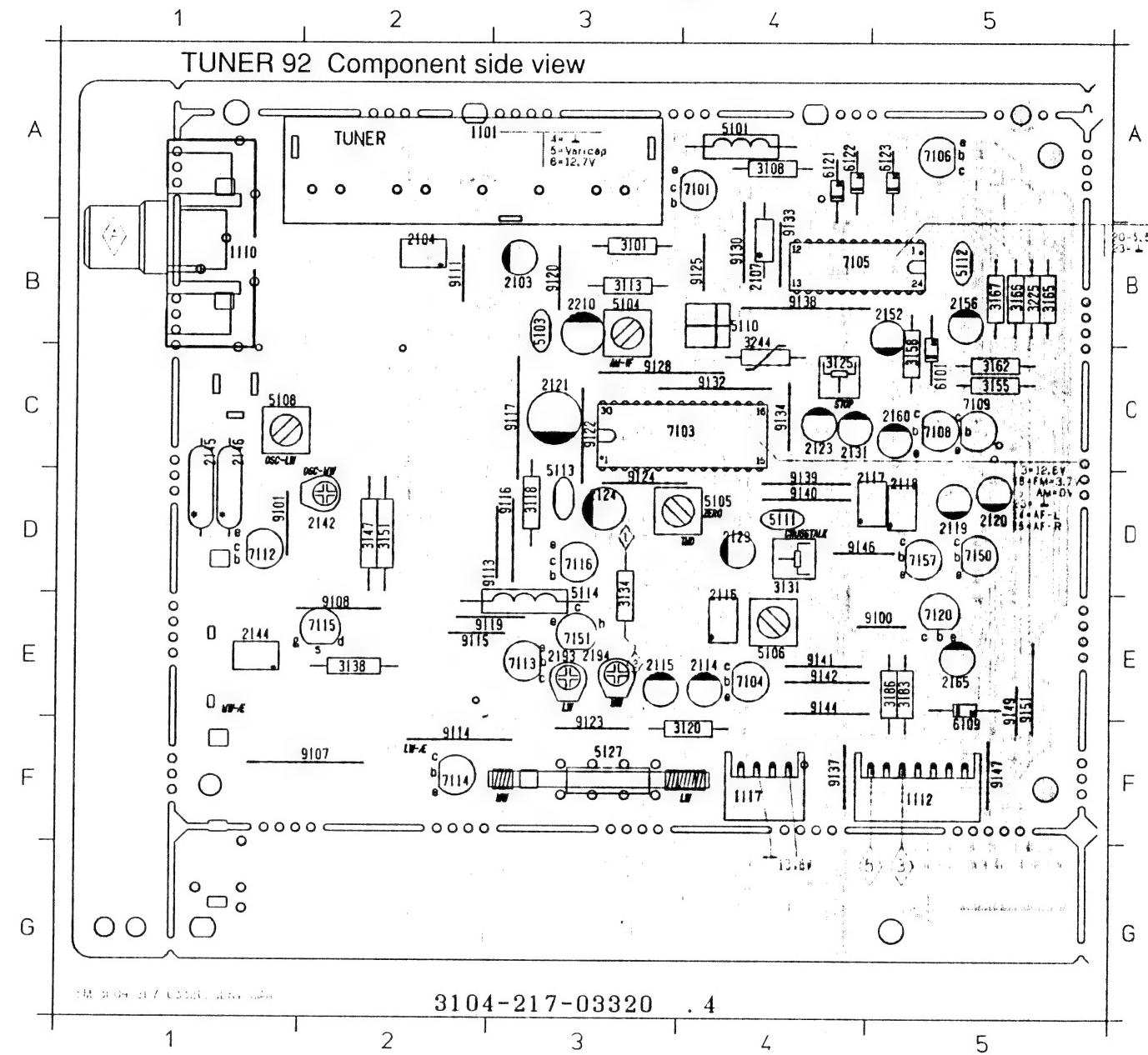


	OPTION DIODE		
	6121	6122	6123
EUROPE	-	X	-
USA	X	-	X
OVERSEAS	-	-	X
EAST EUROPE	X	X	X
JAPAN	-	-	X
EUROPE+SW	X	-	-
OVERSEAS+SW	X	X	-

2101 A3 2125 C3 2154 B1 2216 B1 3103 B3 3117 D3 3129 C2 3145 E4 3160 A2 3185 E1 3201 E3 3240 F4  
 2102 B4 2126 D3 2155 B1 2219 A2 3104 B4 3121 B3 3132 D2 3148 D5 3163 A1 3187 E1 3202 E4 6102 E5  
 2103 A3 2147 B2 2158 D1 2221 D1 3105 B4 3122 D3 3133 E3 3149 D5 3164 C2 3190 C1 3223 C2 7107 B1  
 2108 B3 2148 B2 2159 C1 2222 B3 3106 B3 3123 E2 3135 C3 3152 B3 3170 A1 3194 E2 3230 D1 7111 F3  
 2109 D3 2149 B2 2161 E5 2223 A2 3107 A3 3124 E3 3141 F4 3153 F4 3171 A1 3196 B2 3231 D1 7119 E1  
 2110 C3 2150 C2 2195 E3 2224 F2 3114 E3 3126 B2 3142 F4 3156 C1 3172 A1 3197 C1 3233 B4 TUNER A1  
 2112 C3 2151 B1 2196 D5 2225 F2 3115 D3 3127 C2 3143 E5 3157 C1 3173 A1 3198 B2 3236 E3  
 2113 B2 2153 B1 2215 E2 3102 B3 3116 D3 3128 C2 3144 E5 3159 A2 3184 E1 3200 D4 3239 D3



1101 A2 2119 D5 2156 B5 3131 D4 3186 E5 5113 D3 7106 A5 9100 E5 9122 C3 9140 D4  
 1110 B1 2120 D5 2160 C5 3134 D3 3225 B5 5114 E3 7108 C5 9101 D1 9123 F3 9141 E4  
 1112 F5 2121 C3 2165 E5 3138 E2 3244 C4 5127 F3 7109 C5 9107 F2 9124 D3 9142 E4  
 1117 F4 2123 C4 2193 E3 3147 D2 5101 A4 6101 C3 7112 D1 9108 E2 9125 B4 9144 E4  
 2103 B3 2124 D3 2193 E3 3151 D3 5103 B3 6109 F5 7113 E3 9111 B2 9128 C3 9146 D4  
 2104 B2 2129 D4 2210 B3 3155 C5 5104 B3 6121 A4 7114 F2 9113 D3 9130 B4 9147 F5  
 2107 B4 2131 C4 3101 B3 3158 C5 5105 D4 6122 A4 7115 E2 9114 F2 9132 C4 9149 E5  
 2114 E4 2142 D2 3108 A4 3162 C5 5106 E4 6123 A5 7116 D3 9115 E2 9133 B4 9151 E5  
 2115 E3 2144 E1 3113 B3 3165 B6 5108 C1 7101 A4 7120 E5 9116 D3 9134 C4  
 2116 E4 2145 C1 3118 D3 3166 B5 5110 B4 7103 C4 7150 D5 9117 C3 9137 F4  
 2117 D5 2146 C1 3120 F4 3167 B5 5111 D4 7104 E4 7151 E3 9119 E3 9138 B4  
 2118 D5 2152 B5 3125 C4 3183 E5 5112 B5 7105 B4 7157 D5 9120 B3 9139 D4

VZ  
FNAM  
2ba

LW

MV

FM

FM

ST

FM

SE

FM

AM

AM

AM  
2ba  
m=LW  
m=MW  
m=

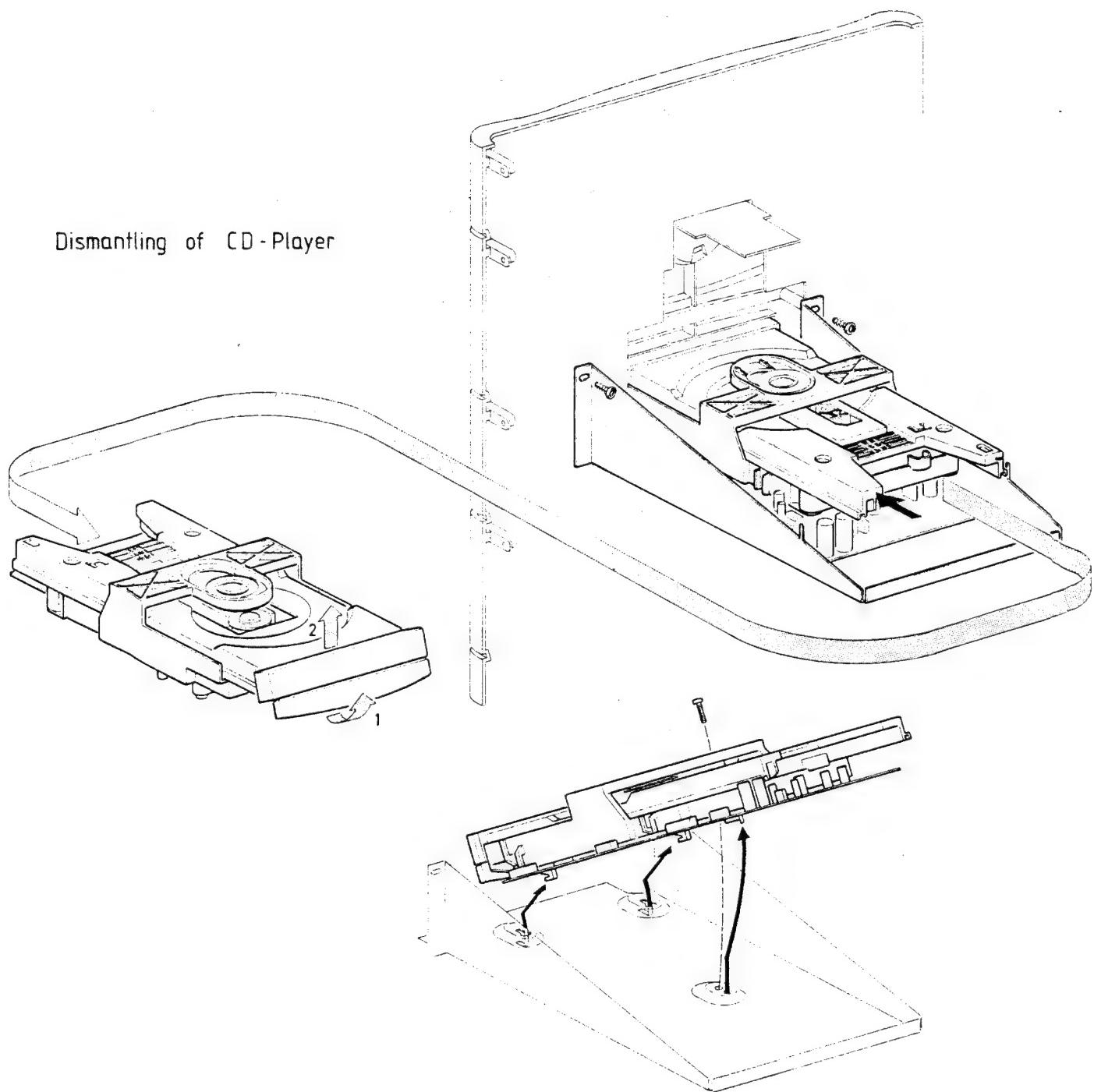
re

## TUNER 92 Adjustment table ( FM, MW - and FM, MW, LW - versions with AM ferrite antenna )

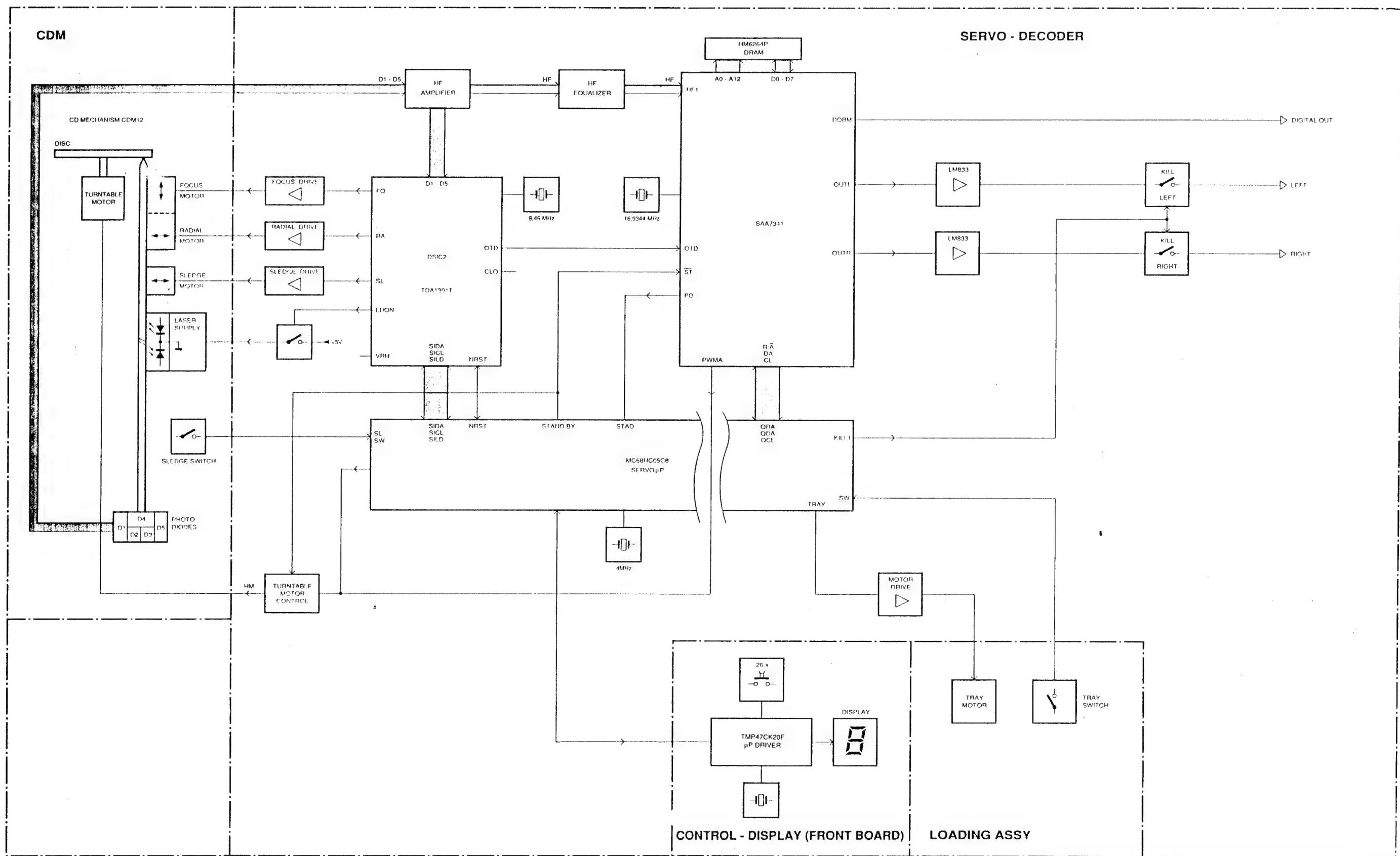
Waverange	Input frequency	Input	Set tuned to	Adjust	Output	Scope / Voltmeter
<b>VARICAP ALIGNMENT</b>						
<b>FM</b>			108 MHz	check		7....9V
	87.5 - 108MHz		87.5MHz	check		1.3....2V
<b>AM</b> 2 band version, 10kHz grid 530 - 1710kHz			1710kHz	5108		8.5V ± 0.1V
			530kHz	check		1V ± 0.3V
<b>LW</b>			279kHz	5108		8.5V ± 0.1V
	153 - 279kHz		153kHz	check		1V ± 0.1V
<b>MW</b>			1611kHz	2142		8.5V ± 0.1V
	522 - 1611kHz		522kHz	check		1.1V ± 0.3V
<b>FM IF</b>						
<b>C</b> FM	98 MHz, 1mV mod = 1kHz $\Delta f = 75\text{kHz}$	A	98MHz	5105	1 2	0V ± 20mV
<b>STEREO CROSSTALK</b>						
<b>E</b> FM	98 MHz, 1mV	A	98MHz	check	3	low < 1V
	90% Left +9% pilot			3131	4	Right channel minimum
<b>SEARCH SENSITIVITY</b>						
<b>F</b> FM	98 MHz, 15μV mod = 1kHz $\Delta f = 75\text{kHz}$	A	98MHz	3125	5	Switches just from High to Low
<b>AM - IF</b>						
<b>G</b> MW	1494kHz $\Delta f = 10\text{kHz}$ as low as possible	100nF 50E C	1494kHz	5104	7	symmetrical and max height
<b>AM RF</b>						
<b>AM</b> 2 band version, 10kHz grid $m=30\%$ , 1kHz	560kHz	B	560kHz	5107		Mix.
	1600kHz		1600kHz	2141		
<b>LW</b> $m=30\%$ , 1kHz	155kHz	B	155kHz	5127 LW	7	Mix.
	270kHz		270kHz	2193		
<b>MW</b> $m=30\%$ , 1kHz	558kHz	B	558kHz	5127 MW		
	1494kHz		1494kHz	2194		

▲ repeat  
▼

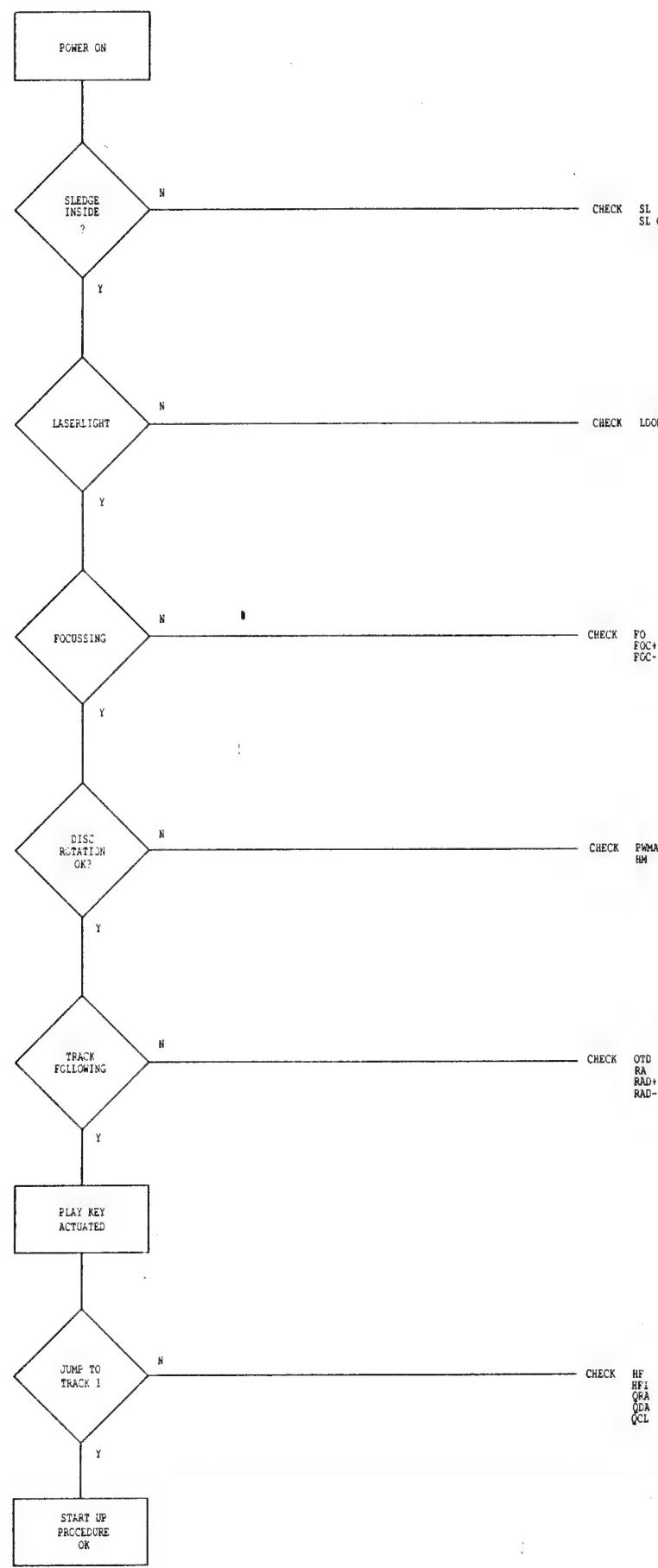
## Dismantling of CD-Player



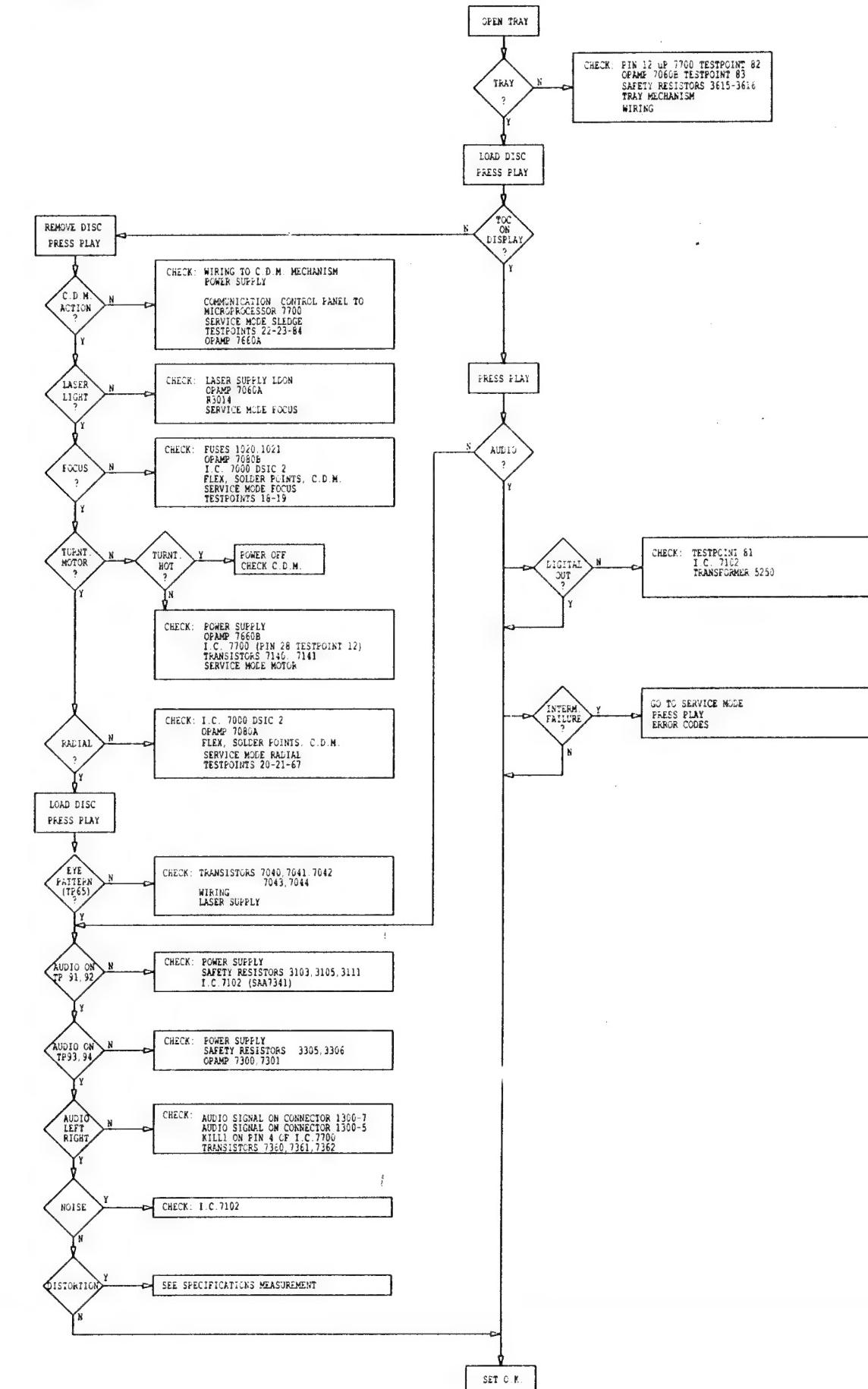
## BLOCK DIAGRAM



## START-UP PROCEDURE



## FAULTFINDING TREE



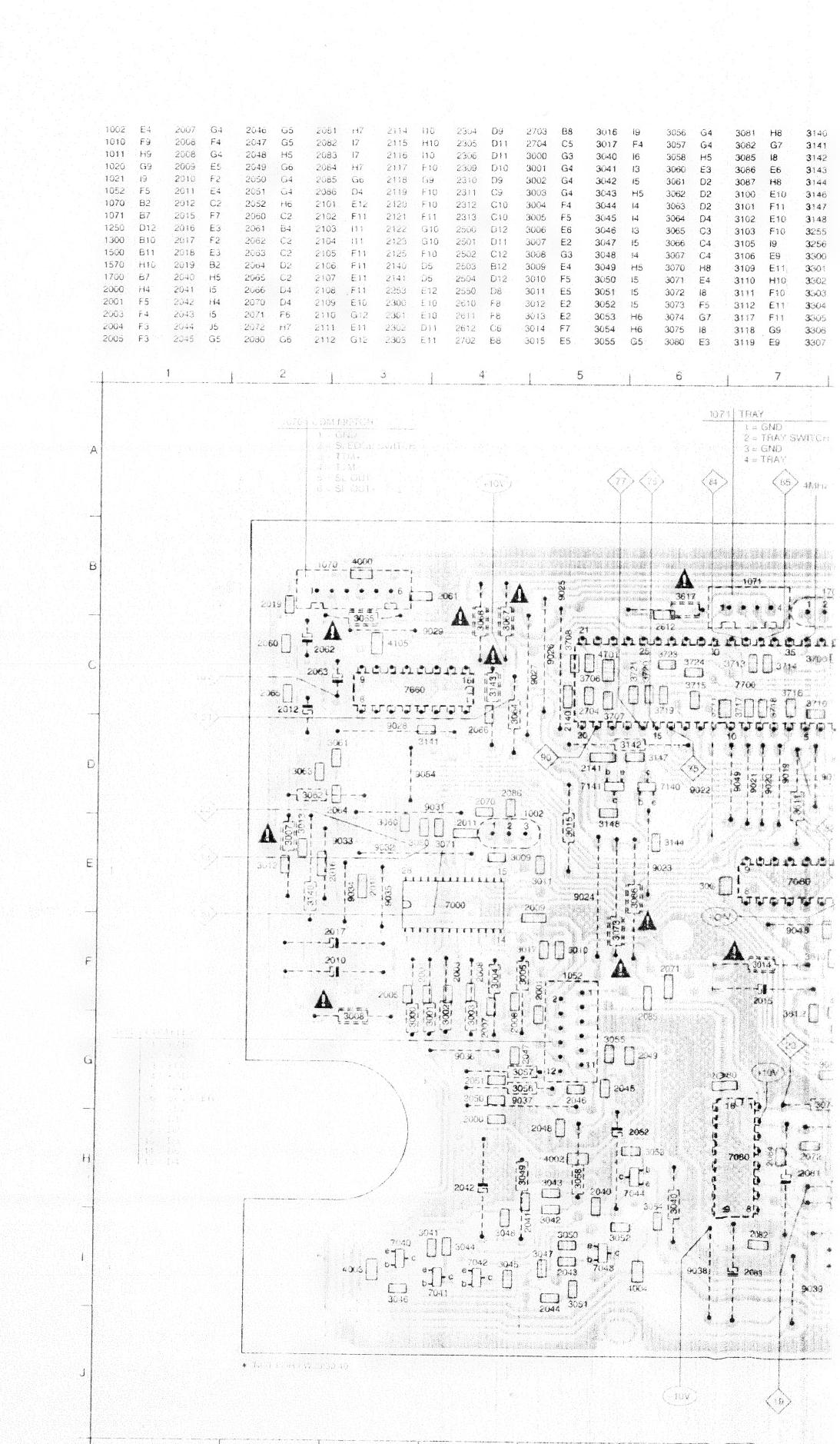
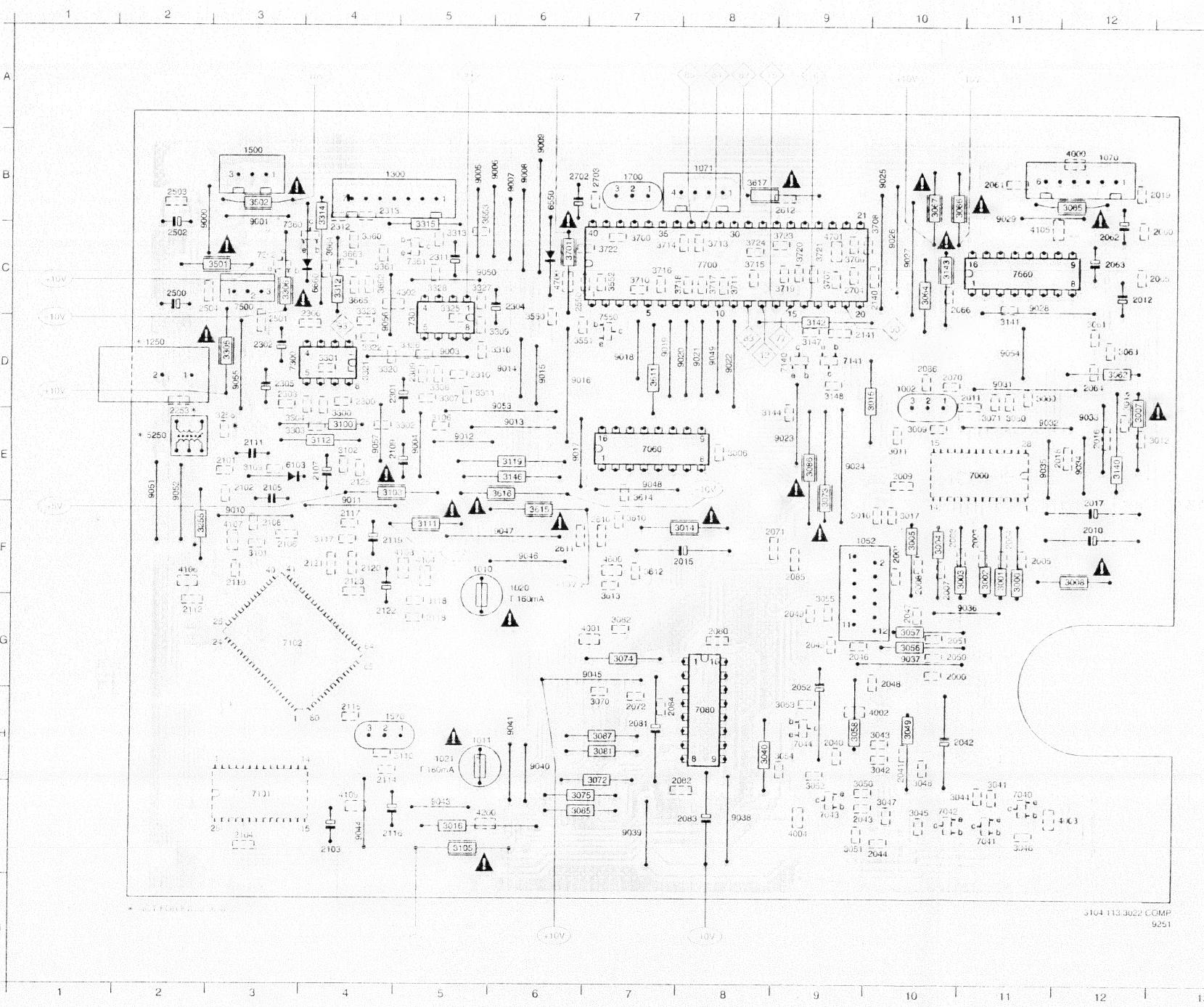
## ABBREVIATIONS

A0-A12	: Address outputs to external RAM
AM*	: Additional mute
CFB	: Data slicer feedback output to capacitor
CL	: Microprocessor interface clock input
CLO	: Clock output
D0-D7	: Data inputs/outputs to external RAM
D1-D4	: Central diode signal input
DA	: Microprocessor interface data input/output line
DE1L	: Pin 1 for external de-emphasis capacitor and resistor
DE1R	: Pin 1 for external de-emphasis capacitor and resistor
DE2L	: Pin 2 for external de-emphasis capacitor and resistor
DE2R	: Pin 2 for external de-emphasis capacitor and resistor
DEEM	: Output for external de-emphasis switches
DOBM	: Digital audio output
FO	: Focus actuator output
HFD	: High frequency detector
HFI*	: Inverting data slicer input
HFI	: Non-inverting data slicer input
HM	: Motor control signal
IREF	: Current reference output
KO*	: Kill out
KTC	: Kill time capacitor connection
LDON	: Laser drive on
MACC	: Motor accelerate signal
MBRA	: Motor brake signal
MHAL	: Hall effect detector for motor
NRST	: Reset input
OC	: VCO control
OTD	: Off track detector
OUTL	: Left channel output
OUTR	: Right channel output
PD	: Phase detector
PWMA	: Pulse width modulated motor control acceleration
PWMB	: Pulse width modulated motor brake signal
R/A	: Request/acknowledge
SD1-5	: Photodiode signals
SICL	: Serial interface clock
SIDA	: Serial interface data
SILD	: Serial interface load
SL	: Sledge output
ST*	: Standby mode
TS1-TS2	: Test input
VddA	: Power supply analog part
VddD	: Power supply digital part
VRH	: Reference input for A/D converter
VRL	: Reference input for A/D converter
VssA	: Ground analog part
VssD	: Ground digital part
WE	: Write enable
XIN	: Crystal oscillator input
XOUT	: Output to clock crystal
XTLI	: Oscillator input
XTLO	: Oscillator output
XTLR	: Oscillator reference

\* log. 0-active !

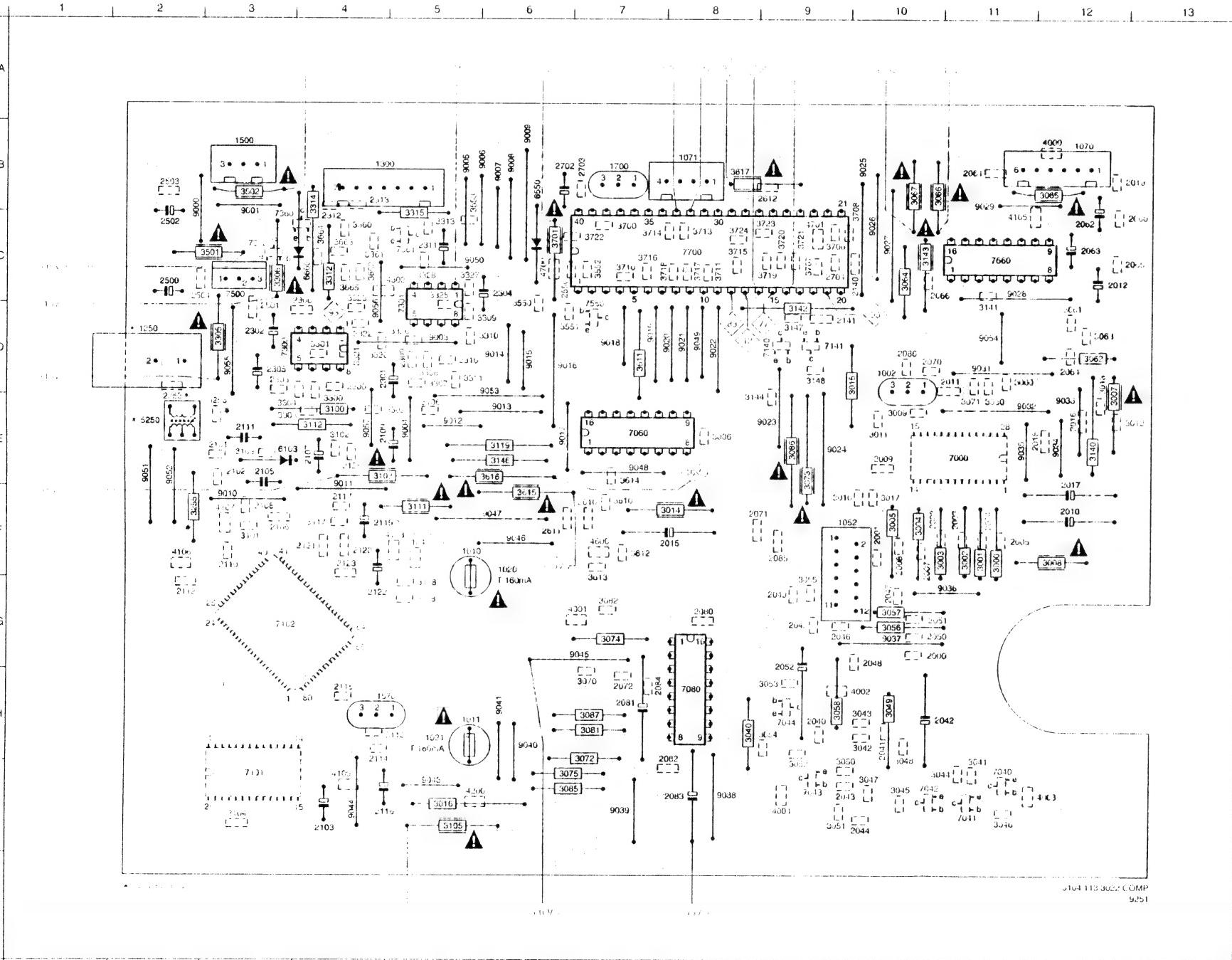
## CD COMPONENT AND CHIP LAYOUT

1002	D10	2008	F10	2050	G10	2101	E3	2122	G4	2502	C2	3010	F9	3052	I9	3075	I6	3140	E12	3310	D5	3552	C7	3711	C8	4106	F2	7080	H8	9007	B6	9027	C10	9049	D8
1010	F5	2010	F12	2052	G9	2103	I4	2125	E4	2504	C2	3011	E10	3053	H9	3081	H7	3142	D9	3312	C4	3610	F7	3714	C7	4108	F4	7101	I5	9008	B6	9028	C11	9050	C5
1011	H5	2011	F12	2056	C12	2104	I3	2140	C10	2505	C6	3013	D12	3055	G9	3082	G7	3143	C10	3313	C5	3611	D7	3715	C6	4109	I4	7140	D9	9011	F3	9031	D11	9052	E2
1020	F6	2011	D10	2060	C12	2104	I3	2140	C10	2505	C6	3013	D12	3055	G9	3082	G7	3143	C10	3313	C5	3611	D7	3715	C6	4109	I4	7140	D9	9011	F3	9031	D11	9052	E2
1021	H5	2012	C12	2105	E3	2141	O9	2610	F7	3014	F7	3056	G10	3085	I6	3144	E8	3314	C4	3612	F7	3716	C7	4200	I5	7141	D9	9011	F4	9032	E11	9053	D5		
1052	F9	2015	F7	2062	C12	2106	F3	2253	E2	2611	F6	3015	D10	3057	G10	3086	E9	3146	E6	3315	C5	3613	G7	3717	C8	4302	C4	7300	D3	9012	E5	9033	E12	9054	D11
1070	B12	2016	E12	2063	C12	2107	E4	2300	O4	2612	BB	3016	I5	3058	H9	3087	H7	3147	D9	3320	D4	3614	E7	3718	C7	4600	F7	7301	D5	9013	E6	9034	E12	9055	D3
1071	B6	2017	E12	2064	D12	2108	F3	2301	O4	2702	B6	3017	F10	3060	D11	3100	E4	3148	D9	3321	D4	3615	F6	3719	C8	4700	C6	7360	C3	9014	D6	9035	E11	9056	D4
1250	D2	2018	E12	2065	C12	2109	E4	2302	O3	2703	B7	3040	H6	3061	D12	3101	F3	3255	F2	3322	D4	3616	E6	3720	C9	4701	C9	7361	C5	9015	D6	9036	G10	9057	E4
1300	B4	2019	B12	2066	C10	2110	F3	2303	O3	2704	C9	3041	H11	3062	D12	3102	E4	3256	E3	3323	C4	3617	B8	3721	C9	5250	E2	7362	C3	9016	D6	9037	G10	9058	E4
1500	B3	2040	H9	2070	D10	2111	E3	2304	C6	3000	F11	3042	H10	3063	D12	3103	E4	3325	C5	3662	C4	3722	C7	6103	E3	7500	C3	9017	E6	9038	I8	9059	E4		
1570	H4	2041	H10	2071	F8	2112	G2	2305	D3	3001	F11	3043	H10	3064	C10	3105	I5	3301	D4	3326	D5	3663	C4	3723	C8	6550	B6	7550	D7	9018	D7	9039	I7	9040	H6
1700	B7	2042	H10	2072	H7	2114	I4	2306	D3	3002	F11	3044	I11	3065	B12	3106	E5	3302	E4	3327	C8	6660	C4	7660	C11	9019	D7	9040	H6	9041	H6				
2000	G10	2043	I9	2080	G8	2115	H4	2309	O5	3003	F11	3045	I11	3066	B10	3109	E3	3303	E3	3328	C5	3665	C4	4000	B12	7000	C8	9020	D8	9041	H6	9042	H6		
2001	F10	2044	I10	2081	H7	2116	I4	2310	D5	3004	F10	3046	I11	3067	B10	3110	H5	3304	E3	3329	C4	3700	C7	4001	G6	7021	C8	9021	D8	9043	I5				
2003	F11	2045	G9	2082	I7	2117	F4	2311	C5	3005	F10	3047	I10	3070	H7	3111	F5	3306	D3	3361	C4	3701	C6	4002	H10	7041	H11	9022	D8	9044	I4				
2004	F11	2046	G9	2083	I8	2118	G5	2312	C4	3006	E8	3048	I10	3071	H11	3112	E4	3306	C3	3501	C2	3706	C9	4003	I2	7042	H10	9023	E8	9045	G6	9046	F6		
2005	F11	2047	G10	2084	H7	2119	F4	2313	B4	3007	E12	3049	H10	3072	I7	3117	F4	3307	D5	3502	B3	3707	C9	4004	I9	7043	I9	9024	E9	9046	F6	9047	F6		
2007	G10	2048	G10	2085	F9	2120	F4	2300	C2	3008	F12	3050	I9	3073	F9	3118	G5	3308	C10	3404	F5	3708	C9	4005	B5	7044	H9	9005	B6	9025	B10	9047	F6		
2008	F10	2049	G9	2086	D10	2121	F4	2301	D3	3009	E10	3051	I9	3074	G7	3119	E6	3309	D5	3551	D6	3710	C7	4105	C11	7060	E7	9006	B6	9026	C10	9048	E7	9049	E4

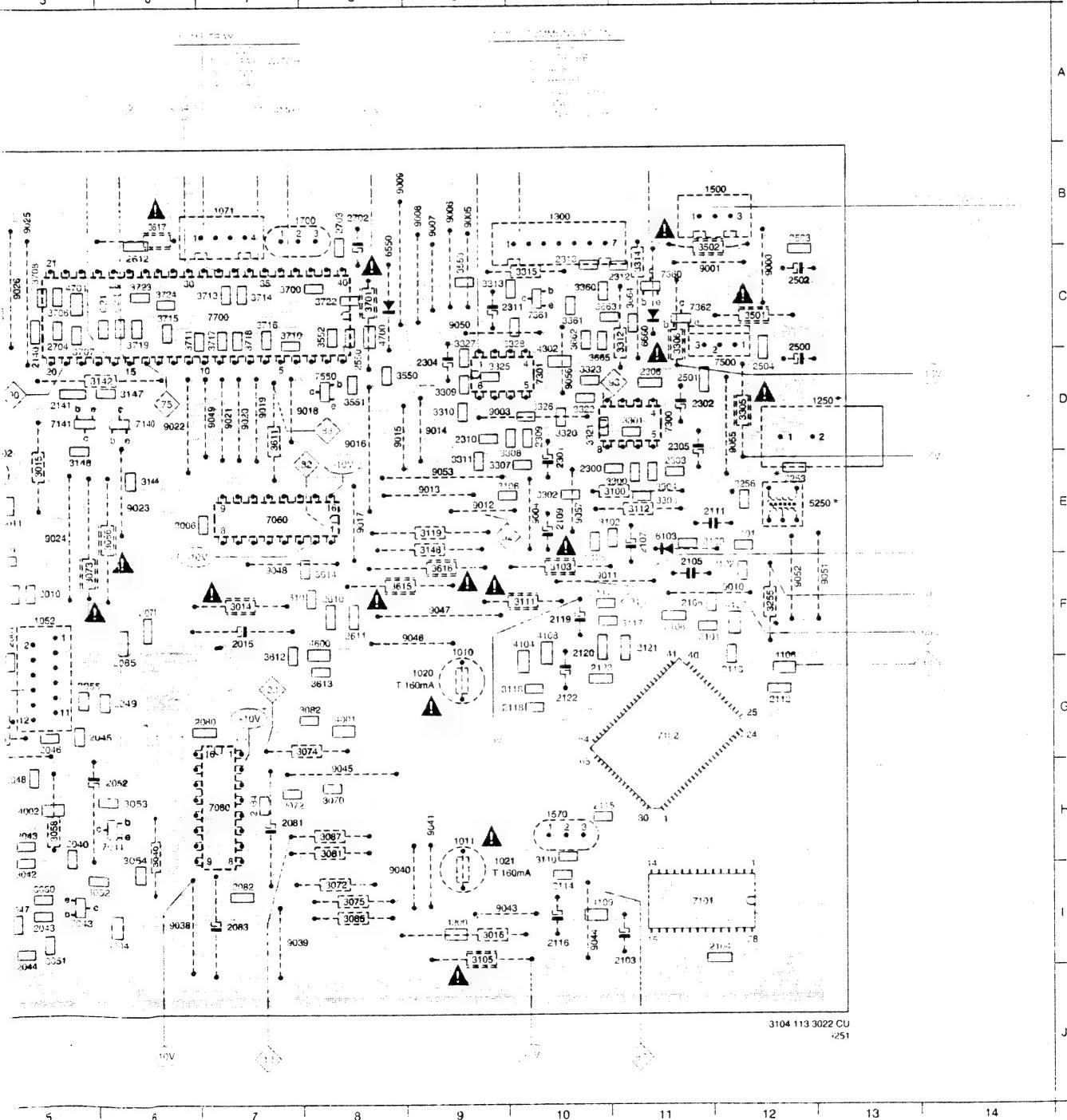


## CD COMPONENT AND CHIP LAYOUT

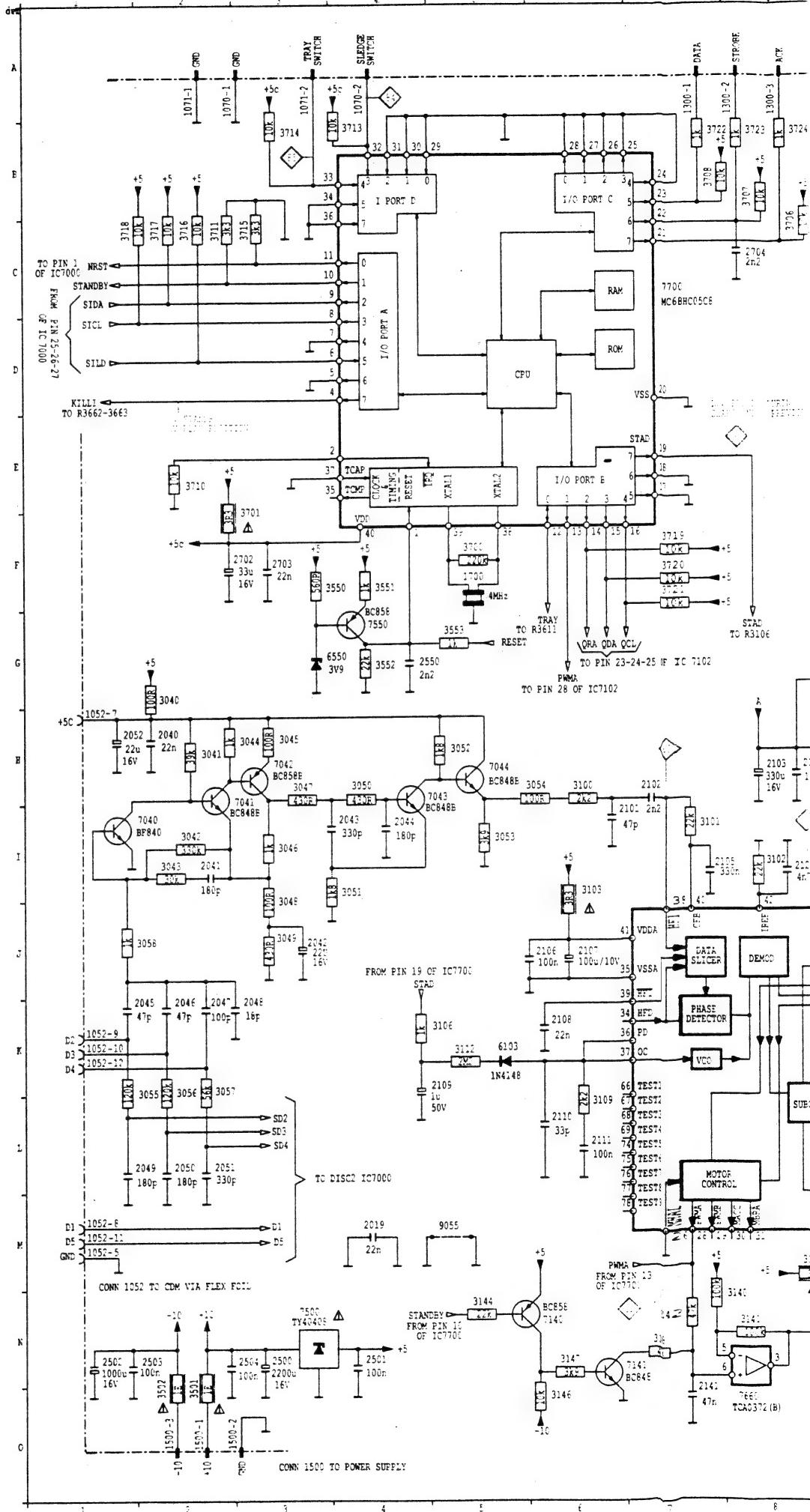
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1010	F5	2009	E10	2051	G10	2102	E3	2123	F4	2503	B2	3011	E10	3053	H9	3080	E11	3141	D11	3311	D5	3553	C5	3713	C8	4107	F3	7101	I3	9008	B6	9028	C11	9050	C5
1011	H5	2010	F12	2052	G9	2103	I4	2125	E4	2504	C2	3012	E12	3054	D9	3081	H7	3142	D9	3312	C4	3610	F7	3714	C7	4108	F4	7102	G3	9009	B6	9029	B11	9051	E2
1020	F6	2011	D10	2060	C12	2104	I3	2140	C10	2550	C6	3013	D12	3055	G9	3082	G7	3143	C10	3313	C5	3611	D7	3715	C8	4109	I4	7140	D9	9010	F3	9031	D11	9052	E2
1021	H6	2012	C12	2061	B11	2105	E3	2141	F6	2610	F7	3014	F7	3056	G10	3085	I6	3144	E8	3314	C4	3612	F7	3716	C7	4260	I5	7141	D9	9011	F4	9032	E11	9053	D5
1052	F5	2015	F7	2062	C12	2106	F3	2253	E2	2611	F6	3015	D10	3057	G10	3086	E9	3146	E6	3315	C5	3613	G7	3717	C8	4362	C4	7301	D3	9012	E5	9033	E12	9054	D11
1070	B12	2016	E12	2063	C12	2107	E4	2300	D4	2612	B8	3016	I5	3058	H9	3087	H7	3147	D9	3320	I4	3614	E7	3718	C7	4600	F7	7301	D5	9013	E6	9034	E12	9055	D3
1071	B6	2017	E12	2064	D12	2108	F3	2301	D4	2702	B6	3017	F10	3060	D11	3100	E4	3148	D9	3321	D4	3615	F6	3719	C6	4700	C9	7361	C3	9014	D6	9035	E11	9056	D4
1250	D2	2018	E12	2065	C12	2109	E4	2302	D3	2703	B7	3040	H6	3061	D12	3101	F3	3255	F2	3322	I4	3616	E6	3720	C9	4701	C9	7361	C5	9015	D6	9036	G10	9057	E4
1300	B4	2019	B12	2066	C10	2110	F3	2303	D3	2704	C9	3041	I1	3062	D12	3102	E4	3256	E3	3323	C4	3617	B8	3721	C5	5250	E2	7362	C3	9016	C6	9037	G10		
1500	B3	2040	H9	2070	D10	2111	E3	2304	C6	3000	F11	3042	H10	3063	D12	3103	E4	3300	E4	3325	C5	3662	C4	3722	C7	6103	E3	7500	C3	9017	E6	9038	I8		
1570	H4	2041	H10	2071	F8	2112	G2	2305	D3	3001	F11	3043	H10	3064	C10	3105	I5	3301	D4	3326	D5	3663	C4	3723	C8	6550	B7	7550	D7	9018	I7	9039	I7		
1700	B7	2042	H10	2072	H7	2114	H4	2306	D3	3002	I4	3044	H10	3065	B12	3106	E5	3301	E4	3327	C5	3664	C4	3724	C8	6660	C4	7660	C11	9019	D7	9040	H6		
2000	G10	2043	I9	2080	G8	2115	H4	2309	D5	3003	F11	3045	H10	3066	B10	3109	E3	3303	E3	3328	C5	3665	C4	4000	B12	7000	C8	9020	D8	9041	H6				
2001	F10	2044	I10	2081	H7	2116	H4	2310	D5	3004	F10	3046	I11	3067	B10	3110	H5	3304	E3	3360	C4	3700	C7	4001	G6	7040	I11	9021	D8	9043	I5				
2004	F11	2045	G9	2082	I7	2117	F4	2311	G5	3005	F10	3047	I10	3070	H7	3111	F5	3305	D3	3361	C4	3701	C6	4042	H10	7041	I11	9022	D8	9044	I4				
2005	F11	2046	G9	2083	I8	2118	F6	2312	C4	3006	E8	3048	I10	3071	E11	3112	E4	3306	C3	3361	C2	3702	I7	4003	I12	7042	I10	9023	E8	9045	G6				
2007	G10	2048	G10	2085	F9	2120	F4	2500	C2	3006	F12	3050	I9	3073	F9	3118	G5	3308	D5	3350	D6	3708	C10	4104	F5	7044	H9	9005	B5	9025	B10	9047	F6		
2008	F10	2049	G9	2086	D10	2121	F4	2501	D3	3009	E10	3051	I9	3074	G7	3119	E6	3309	D5	3351	I6	3710	C7	4105	C11	7060	E7	9006	B6	9026	C10	9048	E7		

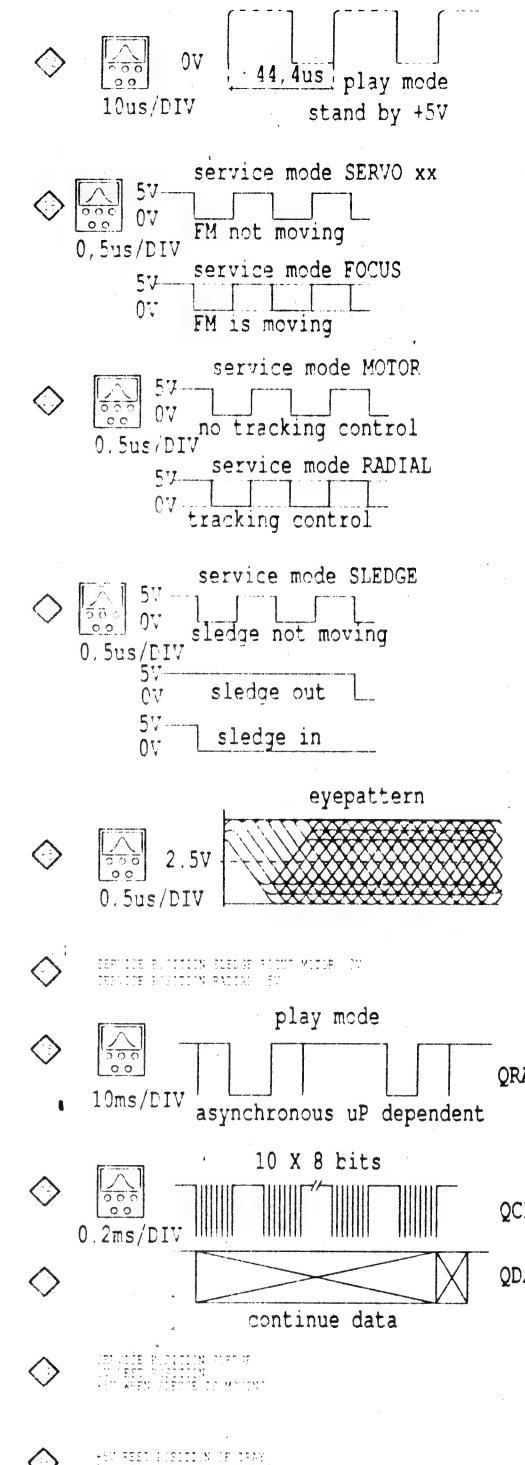
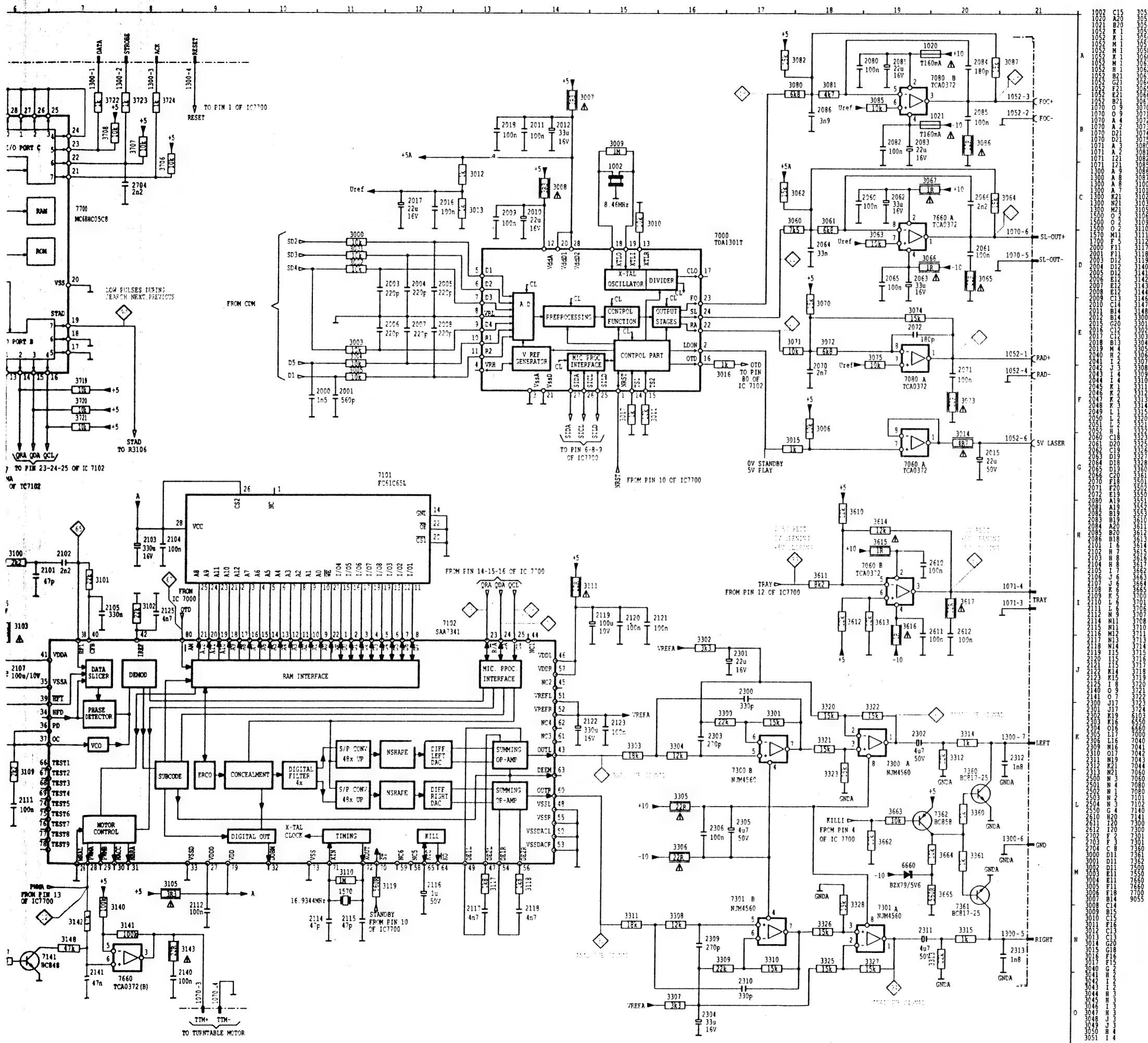


3	B8	3016	I9	3056	G4	3081	H8	3140	E2	3308	E9	J501	C12	3700	C7	3724	C6	6103	E11	7361	C10	9013	E9	9032	E3	9051	F13
4	C5	3017	F4	3057	G4	3082	G7	3141	D3	3309	D9	3502	C11	3701	C8	4000	B3	6550	C8	7362	C11	9014	D9	9033	E3	9052	F12
0	G3	3040	I6	3058	H5	3085	I9	3142	D5	3310	C9	3550	D8	3706	C5	4001	C8	6660	C11	7500	D12	9015	U8	9034	E3	9053	E9
1	G4	3041	I3	3060	E3	3086	E6	3143	C4	3311	E9	3551	D8	3707	D5	4002	H5	7000	E4	7550	D8	9016	C8	9035	E3	9054	C3
2	G4	3042	I5	3061	D2	3087	H8	3144	E6	3312	D11	3552	C8	3708	C5	4003	I3	7040	I3	7660	C3	9017	E8	9036	E4	9055	E12
3	G4	3043	I5	3062	D2	3100	E10	3146	E9	3313	C9	3553	C9	3710	C7	4004	I6	7041	I4	7700	C7	9018	D7	9037	E4	9056	D10
4	F4	3044	I4	3063	D2	3101	F11	3147	D6	3314	C11	3610	F7	3711	C6	4104	F10	7042	I4	9000	C12	9019	D7	9038	I6	9057	E10
5	F5	3045	I4	3064	D4	3102	E10	3148	E5	3315	C10	3611	D7	3713	C6	4105	C3	7043	I5	9001	C11	9020	D7	9039	I7		
6	E6	3046	I3	3065	C3	3103	F10	3255	F12	3320	D10	3612	F7	3714	C7	4106	F12	7044	H6	9003	D9	9021	D7	9040	I8		
7	E2	3047	I5	3066	C4	3105	I9	3256	E12	3321	D10	3613	G8	3715	C6	4107	F12	7060	E7	9004	E10	9022	D6	9041	H9		
8	G3	3048	I4	3067	C4	3106	E9	3300	E10	3322	D10	3614	F8	3716	C7	4108	F10	7080	H7	9005	B9	9023	E6	9043	I9		
9	E4	3049	H5	3070	H8	3109	E11	3301	D11	3323	C10	3615	F8	3717	C7	4109	I10	7101	I11	9006	B9	9024	E5	9044	I10		
0	F5	3050	I5	3071	E4	3110	H10	3302	E10	3325	D9	3616	F9	3718	C7	4200	I9	7102	G11	9007	B9	9025	B5	9045	H8		
1	E5	3051	I5	3072	I8	3111	F10	3303	E11	3326	D10	3617	B6	3719	C6	4302	D10	7140	D6	9008	B9	9026	C5	9046	F8		
2	E2	3052	I5	3073	F5	3112	E11	3304	E11	3327	C9	3662	C10	3720	C6	4600	F8	7141	D5	9009	B8	9027	C5	9047	F9		
3	E2	3053	H6	3074	G7	3117	F11	3305	E12	3328	C9	3663	C10	3721	C6	4700	C3	7300	D11	9010	F12	9028	D3	9048	F7		
4	F7	3054	I6	3075	I8	3118	G9	3306	D11	3329	C8	3664	C11	3722	C8	4701	C5	7301	D10	9011	F10	9029	C3	9049	D7		
5	E5	3055	G5	3080	E3	3119	E9	3307	E9	3361	C10	3665	D10	3723	C6	5250	E12	7360	C11	9012	E9	9031	D3	9050	C9		

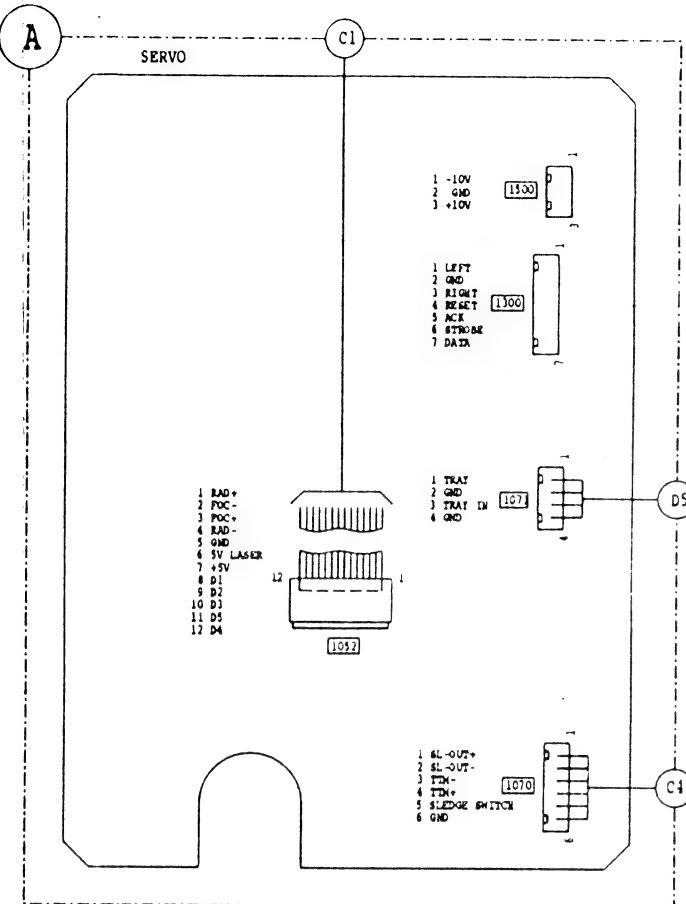


## **CD CIRCUIT DIAGRAM**





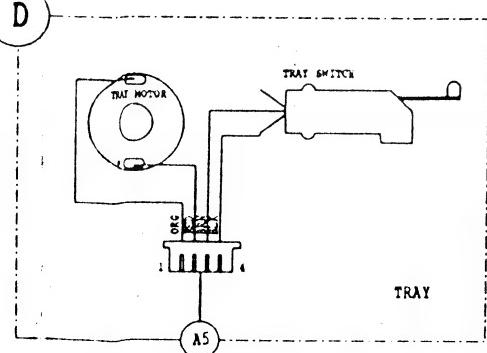
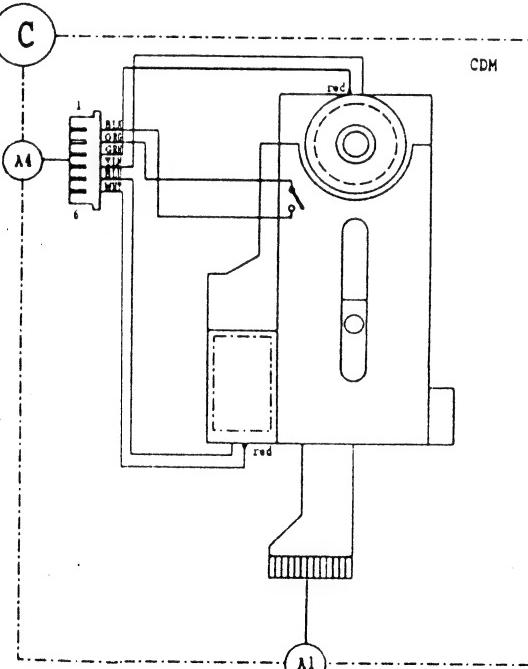
## WIRING DIAGRAM CD-PART



## CD MECHANISM

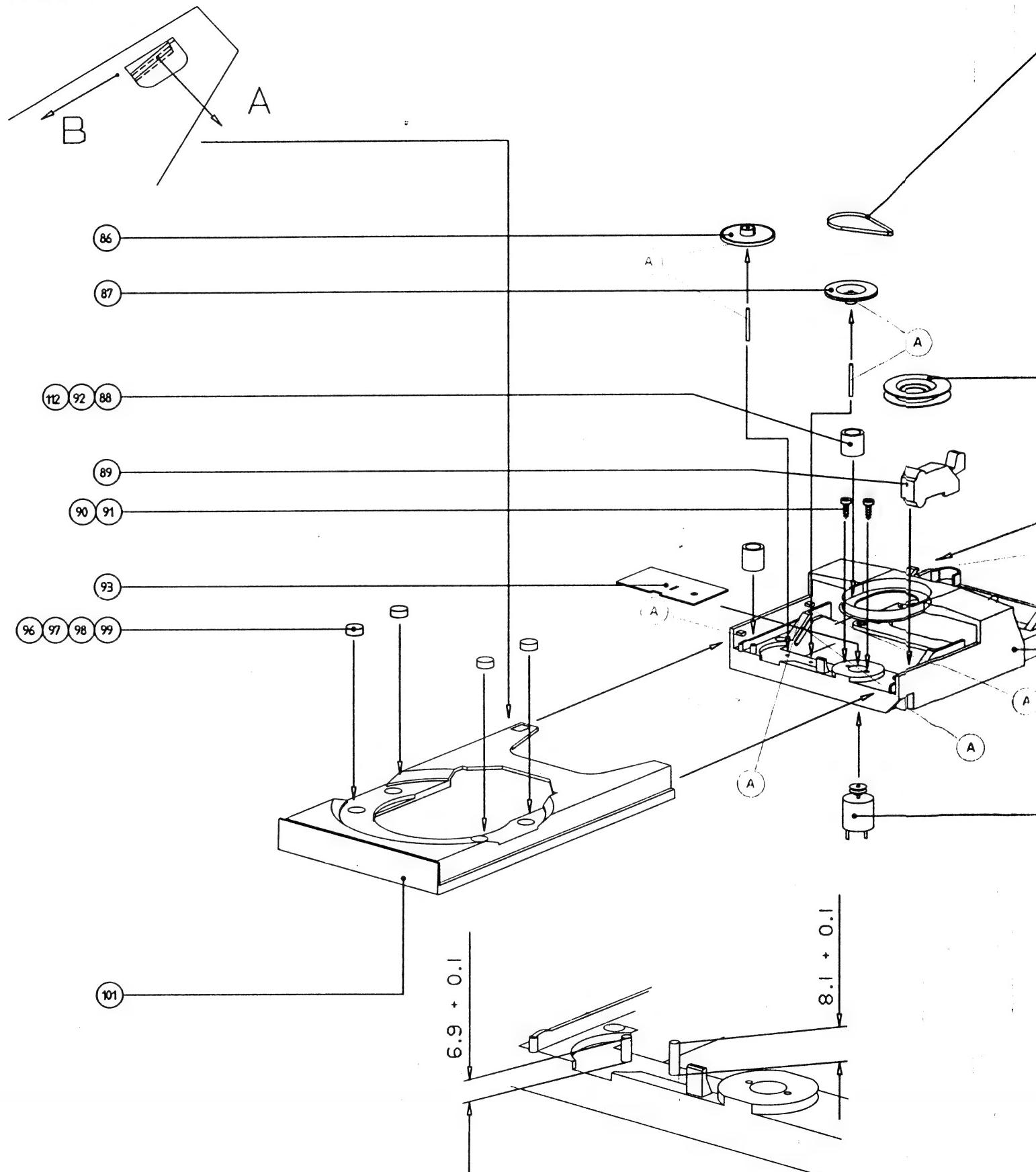
- 86 4822 528 81464
- 87 4822 528 81465
- 88 4822 325 60379
- 89 4822 276 13222
- 93 4822 444 60816
- 96 4822 325 80511
- 101 4822 444 50679
- 102 4822 358 31168
- 103 4822 691 30278
- 104 4822 325 50215
- 108 4822 402 61412
- 109 4822 464 50895
- 110 4822 444 50678
- 111 4822 361 21492

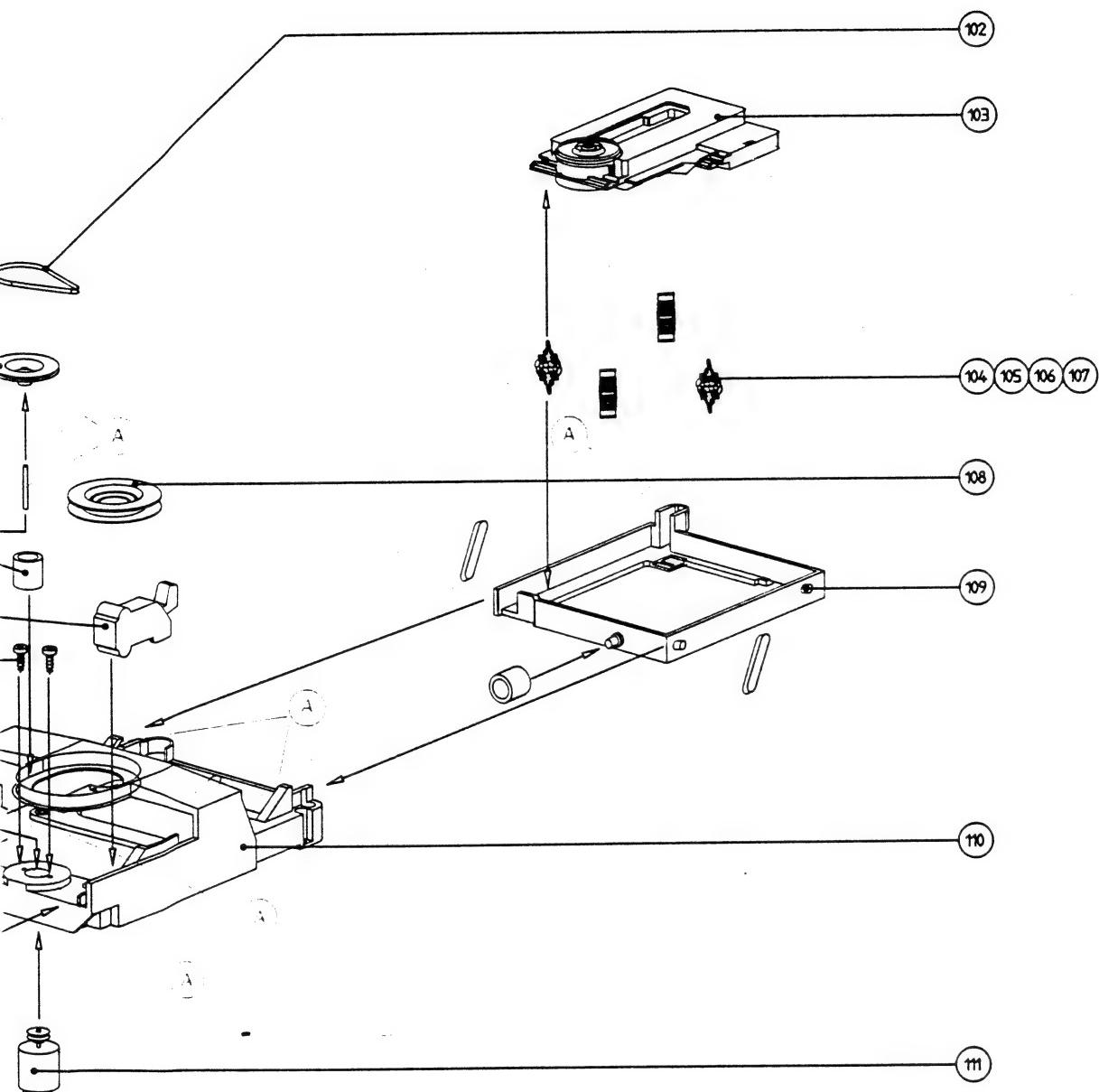
Note : Only the mentioned parts are normal service parts.



## CD EXPLODED VIEW

## DETAIL I





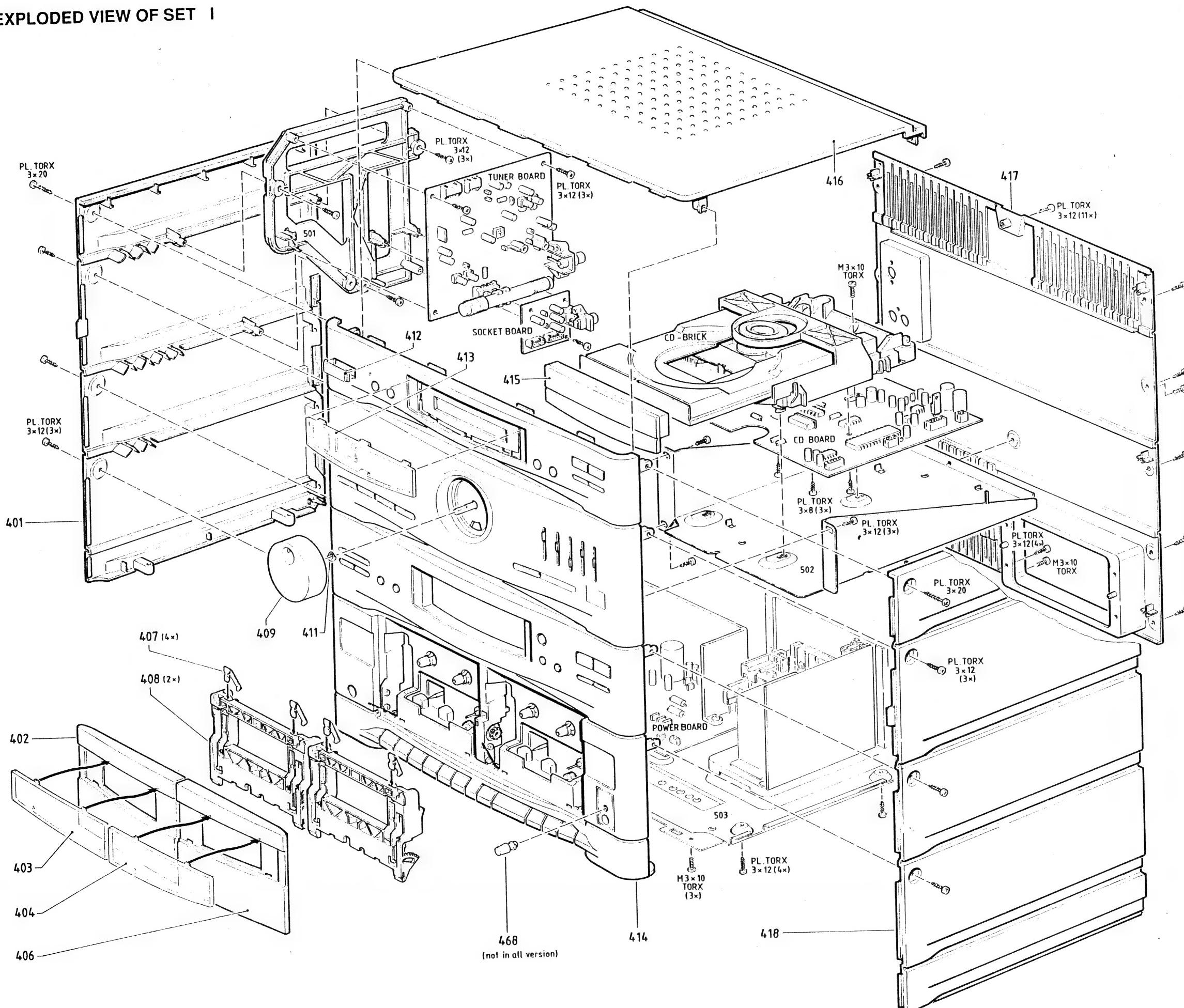
Type of material:

(A) is 4.00 mm 20 kg

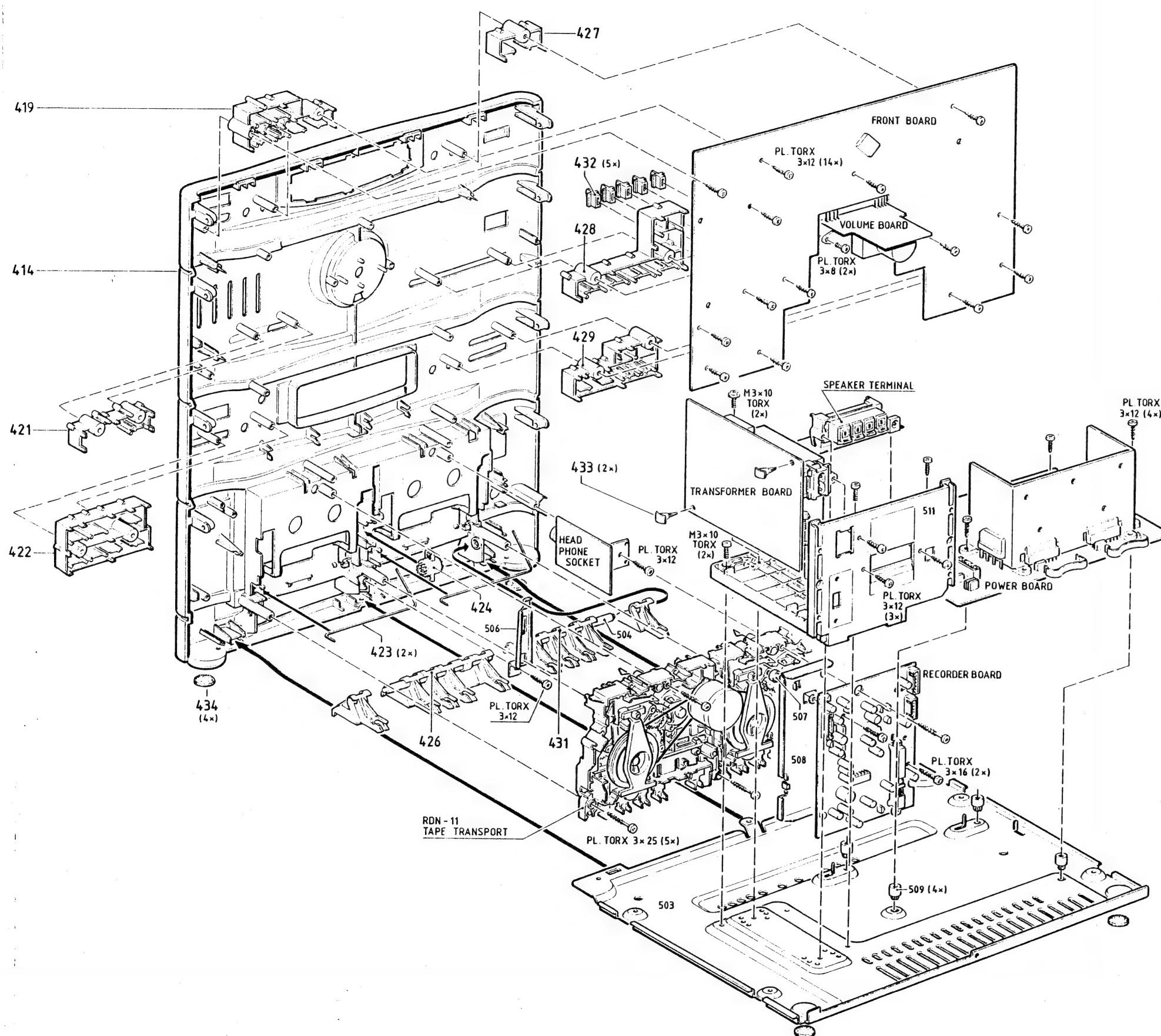
## MECHANICAL PARTS

- 401 4822 426 30153 SIDE LEFT
- 402 4822 443 63936 CASS. DOOR A-DECK
- 403 4822 450 62087 WINDOW A-DECK
- 404 4822 450 62088 WINDOW B-DECK
- 406 4822 443 63935 CASS. DOOR B-DECK
- 407 4822 492 63927 SPRING,CASS.PRESS
- 408 4822 443 63037 DOOR,CASSETTE
- 409 4822 413 41792 KNOB VOLUME
- 411 4822 492 51374 SPRING KNOB CLAMP
- 412 4822 381 11418 IR WINDOW
- 413 4822 450 62074 WINDOW PRINTED
- 414 4822 426 51661 FRONT AS445/20
- 414 4822 426 51644 FRONT AS445/21/30
- 414 4822 426 51643 FRONT AS440/37
- 414 4822 426 51642 FRONT AS440/20/22/25
- 415 4822 444 40661 FRONT CD TRAY
- 416 4822 426 60639 COVER
- 417 4822 426 20241 BACK PLATE
- 418 4822 426 30152 SIDE RIGHT
- 468 4822 410 62622 KNOB MICRO-MIX

## EXPLODED VIEW OF SET 1



## **EXPLODED VIEW OF SET II**



## **MECHANICAL PARTS**

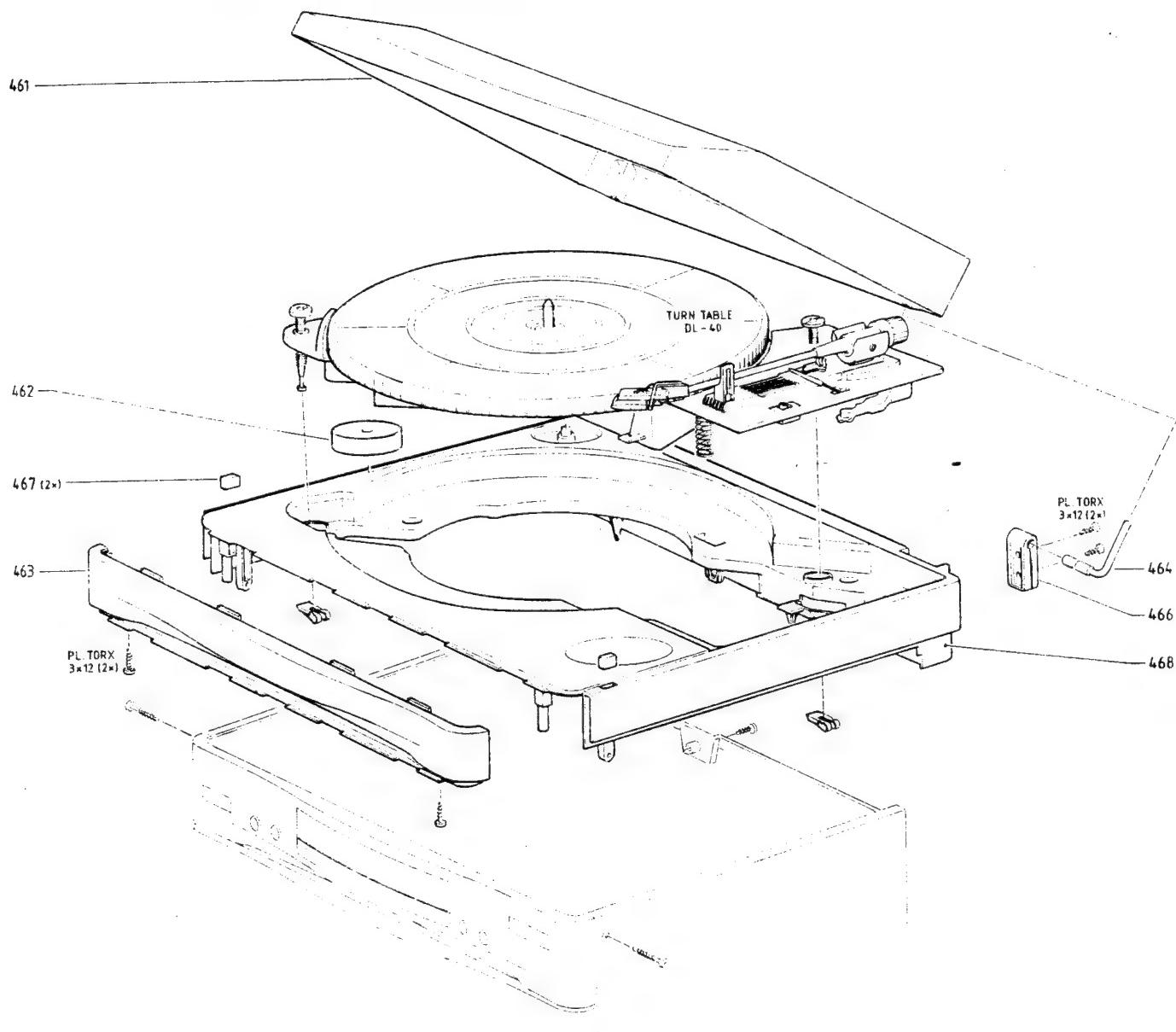
- 414 4822 426 51661 FRONT AS445/20  
414 4822 426 51644 FRONT AS445/21,.30  
414 4822 426 51643 FRONT AS440/37  
414 4822 426 51642 FRONT AS440/20/22/25  
419 4822 410 62618 KNOB PRSET UP/DOWN

421 4822 410 62624 KNOB HSD  
422 4822 410 62626 KNOB CD RIGHT  
423 4822 492 42595 SPRING CASS. COMPARTMENT  
424 4822 529 10278 DAMPER  
426 4822 410 62619 BUTTON SET

428 4822 410 62623 KNOB AUTOPROGRAM  
428 4822 410 62617 KNOB SELECTOR+POWER  
429 4822 410 62625 KNOB CD LEFT  
431 4822 410 62621 . BUTTON SET  
432 4822 411 61929 KNOB EQUALIZER

433 4822 466 93148 SPACER  
434 4822 462 40683 FOOT RUBBER  
4822 691 20842 RDN-11 TAPE TRANSPORTS

## ONLY FOR SETS WITH RECORD PLAYER



## MECHANICAL PARTS TURNTABLE

461 4822 462 71935 DUST COVER  
 462 4822 466 92642 ADAPTOR  
 463 4822 444 40662 FRONT TURNTABLE  
 464 4822 417 10631 CLAMPING BLOCK  
 466 4822 417 10631 CLAMPING BLOCK

467 4822 462 41656 RUBBER PAD  
 468 not a sparepart

**MICRO MIX BOARD****MISCELLANEOUS**

1900	4822 267 30968	PHONE SOCKET
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**INTEGRATED CIRCUITS**

7900	4822 209 83274	NJM4560D
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**RESISTORS**

3900	4822 116 52256	2k2	5%	0,16W
3901	4822 116 52175	100R	5%	0,5W
3902	4822 116 52224	470R	5%	0,5W
3903	4822 116 52234	100k	5%	0,5W
3904	4822 116 52234	100k	5%	0,5W
3905	4822 100 11869	TRIMPOT 20k LIN.		
3906	4822 116 52175	100R	5%	0,5W
3907	4822 116 52234	100k	5%	0,5W
3908	4822 116 52238	12k	5%	0,5W
3909	4822 116 52233	10k	5%	0,5W
3910	4822 116 52224	470R	5%	0,5W
3911	4822 116 52238	12k	5%	0,5W
3912	4822 116 52303	8k2	5%	0,5W

**CAPACITORS**

2900	4822 124 40242	1µF	20%	63V
2901	4822 122 33195	100pF	10%	50V
2902	4822 122 33519	470pF	10%	50V
2903	4822 122 33848	47pF	5%	50V
2904	4822 124 40435	10µF	20%	50V
2905	4822 122 33848	47pF	5%	50V
2906	4822 122 33848	47pF	5%	50V
2907	4822 124 40435	10µF	20%	50V
2908	4822 124 40435	10µF	20%	50V
2909	4822 122 33195	100pF	10%	50V
2910	4822 122 33519	470pF	10%	50V
2911	4822 122 33848	47pF	5%	50V
2913	4822 124 40242	1µF	20%	63V
2914	4822 122 33848	47pF	5%	50V
2915	4822 124 40435	10µF	20%	50V
2916	4822 124 40435	10µF	20%	50V
2917	4822 124 41525	100µF	20%	25V
2918	4822 126 11585	22nF	50V	
2919	4822 124 40433	47µF	20%	25V

**FRONT BOARD****MISCELLANEOUS**

1408	4822 267 30631	CINCH SOCKET
1410	4822 267 30968	PHONE SOCKET
1415	4822 130 91245	FTD-11894
1416	4822 134 40965	LAMP INC. 12V 150mA
1417	4822 134 40965	LAMP INC. 12V 150mA

1421	4822 276 13114	TACT SWITCH
1422	4822 276 13114	TACT SWITCH
1424	4822 276 13114	TACT SWITCH
1425	4822 276 13114	TACT SWITCH
1426	4822 276 13114	TACT SWITCH

1427	4822 276 13114	TACT SWITCH
1428	4822 276 13114	TACT SWITCH
1429	4822 276 13114	TACT SWITCH
1430	4822 276 13114	TACT SWITCH
1431	4822 276 13114	TACT SWITCH

1432	4822 276 13114	TACT SWITCH
1433	4822 276 13114	TACT SWITCH
1434	4822 276 13114	TACT SWITCH
1435	4822 276 13114	TACT SWITCH
1436	4822 276 13114	TACT SWITCH

1437	4822 276 13114	TACT SWITCH
1438	4822 276 13114	TACT SWITCH
1439	4822 276 13114	TACT SWITCH
1440	4822 276 13114	TACT SWITCH
1441	4822 276 13114	TACT SWITCH

1442	4822 276 13114	TACT SWITCH
1443	4822 276 13114	TACT SWITCH
1444	4822 276 13114	TACT SWITCH
1446	4822 276 13114	TACT SWITCH
1447	4822 276 13114	TACT SWITCH

1448	4822 276 13114	TACT SWITCH
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**DIODES**

6401	4822 130 30621	1N4148
6402	4822 130 30621	1N4148
6403	4822 130 30621	1N4148
6404	4822 130 30621	1N4148
6405	4822 130 30621	1N4148

6406	4822 130 30621	1N4148
6407	4822 130 30621	1N4148
6408	4822 130 30621	1N4148
6409	4822 130 30621	1N4148
6410	4822 130 30621	1N4148

6411	4822 130 30621	1N4148
6412	4822 130 30621	1N4148
6413	4822 130 30621	1N4148
6414	4822 130 30621	1N4148
6415	4822 130 30621	1N4148

6416	4822 130 30621	1N4148
6418	4822 130 30621	1N4148
6419	4822 130 30621	1N4148
6420	4822 130 30621	1N4148
6421	4822 130 30621	1N4148

6422	4822 130 30621	1N4148
6423	4822 130 30621	1N4148
6424	4822 130 30621	1N4148
6425	4822 130 30621	1N4148
6427	4822 130 34174	BZX79-C4V7

6428	4822 130 34197	BZX79-C12 (UAW)
6431	4822 130 34174	BZX79-C4V7
6442	4822 130 82021	LTL307G

## DIODES

6450 4822 130 30861 BZX79-C7V5  
 6453 4822 130 30621 1N4148  
 1006 4822 130 83092 LED from Volume pot

## TRANSISTORS

7406 4822 130 40941 BC558  
 7408 4822 130 40938 BC548  
 7409 4822 130 41344 BC337-40  
 7410 4822 130 41344 BC337-40  
 7411 4822 130 41344 BC337-40  
 7412 4822 130 41344 BC337-40  
 7413 4822 130 40938 BC548  
 7421 4822 130 44196 BC548C  
 7423 4822 130 40941 BC558  
 7424 4822 130 41327 BC327-40  
 7426 4822 130 40941 BC558  
 7427 4822 130 40938 BC548  
 7432 4822 130 40938 BC548  
 7433 4822 130 40938 BC548  
 7440 4822 130 40941 BC558  
 7445 5322 130 44779 BC338-40  
 7446 5322 130 44779 BC338-40  
 7447 4822 130 44246 BC549C  
 7448 4822 130 44246 BC549C

## INTEGRATED CIRCUITS

7403 4822 209 83274 NJM4560D  
 7407 4822 209 83274 NJM4560D  
 7415 4822 209 32392 TMP87CK20F-AS440.1  
 7418 4822 209 31508 ST24C01  
 7419 5322 209 10421 HEF4094BP  
 7420 5322 209 10421 HEF4094BP  
 7422 4822 214 52009 GP1U58XP  
 7425 5322 209 86518 MC7805CT

## COILS

5401 5322 242 73697 CERAM.RES. 8MHz  
 5402 4822 157 50961 22μH  
 5405 4822 157 62552 COIL 2,2μH

## RESISTORS

3401 4822 116 52297 68k 5% 0.5W  
 3402 4822 116 52297 68k 5% 0.5W  
 3403 4822 116 52264 27k 5% 0.5W  
 3404 4822 116 52264 27k 5% 0.5W  
 3405 4822 116 52284 47k 5% 0.5W  
 3406 4822 116 52284 47k 5% 0.5W  
 3407 4822 116 52269 3k3 5% 0.5W  
 3408 4822 116 52269 3k3 5% 0.5W  
 3409 4822 116 52263 2k7 5% 0.5W  
 3410 4822 116 52263 2k7 5% 0.5W  
 3413 4822 116 52234 100k 5% 0.5W  
 3414 4822 116 52234 100k 5% 0.5W  
 3415 4822 116 52233 10k 5% 0.5W  
 3416 4822 116 52233 10k 5% 0.5W  
 3417 4822 116 52284 47k 5% 0.5W  
 3418 4822 116 52284 47k 5% 0.5W  
 3419 4822 116 52284 47k 5% 0.5W  
 3420 4822 116 52284 47k 5% 0.5W  
 3421 4822 116 52284 47k 5% 0.5W  
 3422 4822 116 52284 47k 5% 0.5W

## RESISTORS

3423	4822 116 52284	47k	5%	0.5W
3424	4822 116 52284	47k	5%	0.5W
3425	4822 116 52224	470R	5%	0.5W
3426	4822 116 52224	470R	5%	0.5W
3427	4822 116 52257	22k	5%	0.5W
3428	4822 116 52257	22k	5%	0.5W
3431	4822 116 52263	2k7	5%	0.5W
3432	4822 116 52263	2k7	5%	0.5W
3433	4822 116 52276	3k9	5%	0.5W
3434	4822 116 52276	3k9	5%	0.5W
3435	4822 050 11002	1k	5%	0.2W
3436	4822 050 11002	1k	5%	0.2W
3437	4822 116 52264	27k	5%	0.5W
3438	4822 116 52264	27k	5%	0.5W
3439	4822 116 52224	470R	5%	0.5W
3440	4822 116 52224	470R	5%	0.5W
3441	4822 116 52224	470R	5%	0.5W
3442	4822 116 52224	470R	5%	0.5W
3443	4822 116 52291	56k	5%	0.5W
3444	4822 116 52291	56k	5%	0.5W
3445	4822 051 10333	33k	2%	0.25W
3446	4822 051 10333	33k	2%	0.25W
3447	4822 051 10333	33k	2%	0.25W
3448	4822 051 10333	33k	2%	0.25W
3449	4822 116 52264	27k	5%	0.5W
3450	4822 116 52264	27k	5%	0.5W
3451	4822 051 10333	33k	2%	0.25W
3452	4822 051 10333	33k	2%	0.25W
3455	4822 051 10333	33k	2%	0.25W
3456	4822 051 10333	33k	2%	0.25W
3457	4822 116 52264	27k	5%	0.5W
3458	4822 116 52264	27k	5%	0.5W
3459	4822 051 10333	33k	2%	0.25W
3460	4822 051 10333	33k	2%	0.25W
3461	4822 051 10333	33k	2%	0.25W
3462	4822 051 10333	33k	2%	0.25W
3463	4822 116 52285	470k	5%	0.5W
3464	4822 116 52285	470k	5%	0.5W
3465	4822 116 52296	6k8	5%	0.5W
3466	4822 116 52296	6k8	5%	0.5W
3469	4822 116 52283	4k7	5%	0.5W
3470	4822 116 52283	4k7	5%	0.5W
3471	4822 116 52256	2k2	5%	0.16W
3472	4822 116 52256	2k2	5%	0.16W
3473	4822 116 52257	22k	5%	0.5W
3474	4822 116 52257	22k	5%	0.5W
3475	4822 116 52224	470R	5%	0.5W
3476	4822 116 52224	470R	5%	0.5W
3477	4822 116 52256	2k2	5%	0.16W
3478	4822 116 52283	4k7	5%	0.5W
3480	4822 102 10414	Pot 2x20kB		
3481	4822 101 21102	Pot 2x 50k		
3482	4822 101 21102	Pot 2x 50k		
3483	4822 101 21102	Pot 2x 50k		
3484	4822 101 21102	Pot 2x 50k		
3485	4822 101 21102	Pot 2x 50k		
3486	4822 050 11002	1k	5%	0.2W
3487	4822 050 11002	1k	5%	0.2W
3488	4822 050 11002	1k	5%	0.2W
3489	4822 050 11002	1k	5%	0.2W
3490	4822 116 52215	220R	5%	0.16W
3491	4822 116 52233	10k	5%	0.5W
3492	4822 116 52228	680R	5%	0.5W
3493	4822 116 52215	220R	5%	0.16W
3494	4822 116 52215	220R	5%	0.16W

## RESISTORS

3495	4822 116 52215	220R	5%	0.16W
3496	4822 116 52215	220R	5%	0.16W
3497	4822 116 52257	22k	5%	0.5W
3498	4822 116 52233	10k	5%	0.5W
3499	4822 116 52215	220R	5%	0.16W

3500	4822 116 52217	270R	5%	0.5W
3501	4822 116 52269	3k3	5%	0.5W
3502	4822 050 11002	1k	5%	0.2W
3503	4822 050 11002	1k	5%	0.2W
3504	4822 116 52269	3k3	5%	0.5W

3505	4822 116 52251	18k	5%	0.5W
3506	4822 116 52175	100R	5%	0.5W
3507	4822 116 52217	270R	5%	0.5W
3508	4822 116 52217	270R	5%	0.5W
3516	4822 116 52233	10k	5%	0.5W

3517	4822 116 52233	10k	5%	0.5W
3526	4822 116 52228	680R	5%	0.5W
3528	4822 116 52304	82k	5%	0.5W
3530	4822 116 52233	10k	5%	0.5W
3531	4822 116 52283	4k7	5%	0.5W

3532	4822 116 52283	4k7	5%	0.5W
3533	4822 116 52283	4k7	5%	0.5W
3534	4822 116 52283	4k7	5%	0.5W
3535	4822 116 52283	4k7	5%	0.5W
3536	4822 116 52283	4k7	5%	0.5W

3537	4822 116 52217	270R	5%	0.5W
3538	4822 116 52217	270R	5%	0.5W
3539	4822 116 52217	270R	5%	0.5W
3540	4822 116 52258	220k	5%	0.5W
3552	4822 050 11002	1k	5%	0.2W

3554	4822 116 52233	10k	5%	0.5W
3555	4822 116 52233	10k	5%	0.5W
3556	4822 116 52233	10k	5%	0.5W
3557	4822 116 52233	10k	5%	0.5W
3558	4822 116 52256	2k2	5%	0.16W

3559	4822 116 52256	2k2	5%	0.16W
3560	4822 116 52283	4k7	5%	0.5W
3562	4822 050 11002	1k	5%	0.2W
3563	4822 116 52233	10k	5%	0.5W
3564	4822 050 11002	1k	5%	0.2W

3565	4822 050 11002	1k	5%	0.2W
3568	4822 116 52233	10k	5%	0.5W
3573	4822 050 11002	1k	5%	0.2W
3574	4822 116 52284	47k	5%	0.5W
3575	4822 050 11002	1k	5%	0.2W

3576	4822 051 10333	33k	2%	0.25W
3577	4822 116 52233	10k	5%	0.5W
3578	4822 116 52233	10k	5%	0.5W
3579	4822 116 52233	10k	5%	0.5W
3580	4822 116 52233	10k	5%	0.5W

3581	4822 116 52233	10k	5%	0.5W
3585	4822 116 52249	1k8	5%	0.16W
3586	4822 116 52175	100R	5%	0.5W
3587	4822 116 52175	100R	5%	0.5W
3589	4822 050 11002	1k	5%	0.2W

3590	4822 116 52257	22k	5%	0.5W
3591	4822 050 11002	1k	5%	0.2W
3592	4822 116 52257	22k	5%	0.5W
3593	4822 050 11002	1k	5%	0.2W
3594	4822 116 52224	470R	5%	0.5W

3595	4822 116 52224	470R	5%	0.5W
3596	4822 116 52224	470R	5%	0.5W
3597	4822 116 52224	470R	5%	0.5W
3598	4822 116 52256	2k2	5%	0.16W
3601	4822 116 52224	470R	5%	0.5W

## RESISTORS

3602	4822 116 52224	470R	5%	0.5W
3603	4822 050 11002	1k	5%	0.2W
3604	4822 050 11002	1k	5%	0.2W
3605	4822 116 52207	1k2	5%	0.5W
3606	4822 116 52207	1k2	5%	0.5W

3607	4822 116 52256	2k2	5%	0.16W
3608	4822 116 52256	2k2	5%	0.16W
3609	4822 116 52296	6k8	5%	0.5W
3610	4822 116 52215	220R	5%	0.16W
3612	4822 116 52256	2k2	5%	0.16W

3613	4822 050 11002	1k	5%	0.2W
3615	4822 116 52224	470R	5%	0.5W
3616	4822 116 52224	220R	5%	0.16W
3617	4822 116 52228	680R	5%	0.5W
3618	4822 116 52233	10k	5%	0.5W

3620	4822 116 52233	10k	5%	0.5W
3621	4822 116 52224	470R	5%	0.5W
3622	4822 116 52224	470R	5%	0.5W
3623	4822 116 52224	470R	5%	0.5W
3624	4822 116 52224	470R	5%	0.5W

3649	4822 050 22205	2M2	1%	0.6W
3650	4822 050 22205	2M2	1%	0.6W
3651	4822 116 52257	22k	5%	0.5W
3652	4822 116 52257	22k	5%	0.5W
3653	4822 116 52235	1M	5%	0.5W

3663	4822 116 52224	470R	5%	0.5W
3664	4822 116 52228	680R	5%	0.5W
3665	4822 116 52256	2k2	5%	0.16W
3666	4822 116 52234	100k	5%	0.5W
3667	4822 116 52234	100k	5%	0.5W

3668	4822 050 11002	1k	5%	0.2W
3672	4822 050 11002	1k	5%	0.2W
3673	4822 116 52233	10k	5%	0.5W
3674	4822 116 52233	10k	5%	0.5W
3675	4822 116 52233	10k	5%	0.5W

2401	4822 124 40239	0.47μF	20%	

## CAPACITORS

2428	4822 124 40242	1μF	20%	63V
2429	4822 126 12702	270pF	10%	50V
2430	4822 126 12702	270pF	10%	50V
2431	4822 122 33197	1nF	10%	50V
2432	4822 122 33197	1nF	10%	50V
2433	4822 122 33197	1nF	10%	50V
2434	4822 122 33197	1nF	10%	50V
2435	4822 126 11714	4.7nF	20%	
2436	4822 126 11714	4.7nF	20%	
2437	4822 126 11714	4.7nF	20%	
2438	4822 126 11714	4.7nF	20%	
2439	4822 126 11585	22nF		50V
2440	4822 126 11585	22nF		50V
2441	4822 126 11585	22nF		50V
2442	4822 126 11585	22nF		50V
2443	4822 121 43526	47nF	5%	100V
2444	4822 121 43526	47nF	5%	100V
2445	4822 121 42408	220nF	5%	63V
2446	4822 121 42408	220nF	5%	63V
2449	4822 122 33195	100pF	10%	50V
2450	4822 122 33195	100pF	10%	50V
2451	4822 124 40246	4.7uF	20%	63V
2452	4822 124 40246	4.7uF	20%	63V
2453	4822 121 51387	10nF	20%	16V
2454	4822 121 51387	10nF	20%	16V
2455	4822 122 33192	27pF	5%	50V
2456	4822 122 33192	27pF	5%	50V
2460	4822 124 40239	0.47μF	20%	63V
2461	4822 126 11585	22nF		50V
2462	4822 126 11585	22nF		50V
2463	4822 126 11585	22nF		50V
2464	4822 124 41525	100μF	20%	25V
2465	4822 124 22263	220μF	20%	25V
2466	4822 124 40248	10μF	20%	63V
2468	4822 124 40248	10μF	20%	63V
2469	4822 124 40242	1μF	20%	63V
2470	4822 124 40242	1μF	20%	63V
2471	4822 122 33519	470pF	10%	50V
2472	4822 122 33519	470pF	10%	50V
2473	4822 124 40433	47μF	20%	25V
2475	4822 124 22263	220μF	20%	25V
2476	4822 124 41525	100μF	20%	25V
2477	4822 124 40433	47μF	20%	25V
2483	4822 122 33197	1nF	10%	50V
2484	4822 122 33197	1nF	10%	50V
2502	4822 124 41525	100μF	20%	25V
2503	4822 124 41525	100μF	20%	25V
2504	5322 124 21643	22μF	20%	40V
2505	4822 126 11585	22nF		50V
2507	4822 126 12702	270pF	10%	50V
2510	4822 122 33848	47pF	5%	50V
2512	4822 124 40242	1μF	20%	63V
2513	4822 124 40248	10μF	20%	63V
2514	4822 126 12702	270pF	10%	50V
2552	4822 122 33197	1nF	10%	50V
2553	4822 122 33197	1nF	10%	50V
2554	4822 122 33197	1nF	10%	50V
2555	4822 122 33197	1nF	10%	50V
2556	4822 122 33195	100pF	10%	50V
2557	4822 122 33195	100pF	10%	50V
2558	5322 121 42386	100nF	5%	63V

## RECORDER BOARD

## DIODES

6701	4822 130 30621	1N4148
6702	4822 130 30621	1N4148
6704	4822 130 30621	1N4148
6705	4822 130 30621	1N4148
6706	4822 130 30621	1N4148
6707	4822 130 30621	1N4148
6710	4822 130 30621	1N4148
6712	4822 130 30621	1N4148

## TRANSISTORS

7703	4822 130 40937	BC548B
7704	4822 130 40937	BC548B
7705	4822 130 40937	BC548B
7706	5322 130 44779	BC338-40
7707	5322 130 44779	BC338-40
7708	4822 130 44197	BC558B
7709	4822 130 40937	BC548B
7712	4822 130 44196	BC548C
7713	4822 130 44197	BC558B
7753	4822 130 40937	BC548B
7756	5322 130 44779	BC338-40
7757	5322 130 44779	BC338-40

## INTEGRATED CIRCUITS

7701	4822 209 72491	KA2224
7702	4822 209 70288	UPC1313HA

## COILS

5701	4822 157 51238	820μH
5702	4822 157 51238	820μH

## RESISTORS

3701	4822 116 52224	470R	5%	0.5W
3702	4822 116 52224	470R	5%	0.5W
3703	4822 116 52224	470R	5%	0.5W
3704	4822 116 52258	220k	5%	0.5W
3705	4822 116 52188	27R	5%	0.5W
3706	4822 116 52175	100R	5%	0.5W
3709	4822 116 52175	100R	5%	0.5W
3710	4822 116 52289	5k6	5%	0.16W
3711	4822 116 52234	100k	5%	0.5W
3712	4822 116 52251	18k	5%	0.5W
3713	4822 116 52296	6k8	5%	0.5W
3715	4822 116 52257	22k	5%	0.5W
3716	4822 050 11002	1k	5%	0.2W
3717	4822 116 52256	2k2	5%	0.16W
3718	4822 116 52224	470R	5%	0.5W
3719	4822 116 52257	22k	5%	0.5W
3720	4822 116 52224	470R	5%	0.5W
3721	4822 116 52224	470R	5%	0.5W
3722	4822 116 52224	470R	5%	0.5W
3723	4822 116 52224	470R	5%	0.5W
3724	4822 116 52258	220k	5%	0.5W
3725	4822 116 52175	100R	5%	0.5W
3727	4822 050 22205	2M2	1%	0.6W
3730	4822 050 11002	1k	5%	0.2W
3731	4822 116 52207	1k2	5%	0.5W

## RESISTORS

3732	4822 116 52233	10k	5%	0.5W
3733	4822 116 52207	1k2	5%	0.5W
3734	4822 116 52233	10k	5%	0.5W
3735	4822 116 52238	12k	5%	0.5W
3736	4822 116 52264	27k	5%	0.5W
3737	4822 116 52224	470R	5%	0.5W
3738	4822 116 52257	22k	5%	0.5W
3739	4822 116 52224	470R	5%	0.5W
3741	4822 050 11002	1k	5%	0.2W
3742	4822 050 11002	1k	5%	0.2W
3743	4822 116 52257	22k	5%	0.5W
3744	4822 116 52258	220k	5%	0.5W
3745	4822 116 52234	100k	5%	0.5W
3746	4822 116 52224	470R	5%	0.5W
3747	4822 116 52234	100k	5%	0.5W
3749	4822 116 52283	4k7	5%	0.5W
3751	4822 116 52224	470R	5%	0.5W
3752	4822 116 52224	470R	5%	0.5W
3753	4822 116 52224	470R	5%	0.5W
3754	4822 116 52258	220k	5%	0.5W
3755	4822 116 52188	27R	5%	0.5W
3756	4822 050 11002	1k	5%	0.2W
3760	4822 116 52289	5k6	5%	0.16W
3761	4822 116 52234	100k	5%	0.5W
3763	4822 116 52296	6k8	5%	0.5W
3765	4822 116 52257	22k	5%	0.5W
3766	4822 050 11002	1k	5%	0.2W
3767	4822 116 52256	2k2	5%	0.16W
3768	4822 116 52224	470R	5%	0.5W
3769	4822 116 52257	22k	5%	0.5W
3770	4822 116 52224	470R	5%	0.5W
3771	4822 116 52224	470R	5%	0.5W
3772	4822 116 52224	470R	5%	0.5W
3773	4822 116 52224	470R	5%	0.5W
3774	4822 116 52258	220k	5%	0.5W
3775	4822 116 52175	100R	5%	0.5W
3778	4822 052 10189	18R	5%	0.33W
3779	4822 116 52298	680k	5%	0.5W
3780	4822 050 11002	1k	5%	0.2W
3781	4822 116 52207	1k2	5%	0.5W
3782	4822 050 11002	1k	5%	0.2W
3783	4822 116 52258	220k	5%	0.5W
3785	4822 116 52238	12k	5%	0.5W
3786	4822 116 52264	27k	5%	0.5W
3788	4822 116 52257	22k	5%	0.5W
3789	4822 116 52224	470R	5%	0.5W
3791	4822 050 11002	1k	5%	0.2W
3792	4822 050 11002	1k	5%	0.2W
3796	4822 116 52257	22k	5%	0.5W
3797	4822 050 11002	1k	5%	0.2W
3798	4822 116 52231	820R	5%	0.5W
3799	4822 116 52234	100k	5%	0.5W

## CAPACITORS

2713	4822 124 40433	47μF	20%	25V
2720	4822 122 10174	1.5nF	10%	50V
2721	4822 122 33534	1.2nF	10%	50V
2722	4822 124 22466	1μF	20%	50V
2723	4822 124 22633	22μF	20%	35V
2724	4822 126 11595	470pF	10%	50V
2725	4822 124 40433	47μF	20%	25V
2726	4822 124 40433	47μF	20%	25V
2728	4822 124 40435	10μF	20%	50V
2730	4822 126 11325	4.7nF	10%	50V
2731	4822 121 41857	10nF	5%	250V
2732	4822 122 10158	1nF	10%	50V
2751	4822 122 10173	820pF	10%	50V
2753	4822 124 41643	100μF	20%	16V
2754	4822 126 11595	470pF	10%	50V
2758	4822 124 40435	10μF	20%	50V
2759	4822 121 41857	10nF	5%	250V
2762	4822 126 11311	4.7nF	50V	
2770	4822 122 10174	1.5nF	10%	50V
2771	4822 122 33534	1.2nF	10%	50V
2772	4822 124 22466	1μF	20%	50V
2773	4822 124 22633	22μF	20%	35V
2774	4822 126 11595	470pF	10%	50V
2775	4822 124 40184	1000μF	20%	10V
2778	4822 124 40435	10μF	20%	50V
2781	4822 121 41857	10nF	5%	250V
2782	4822 122 10158	1nF	10%	50V
2783	4822 121 41935	12nF	5%	250V
2784	4822 124 40242	1μF	20%	63V
2785	4822 121 51305	15nF	10%	50V
2786	4822 122 10183	100pF	5%	50V
2788	4822 124 40433	47μF	20%	25V
2789	4822 124 40433	47μF	20%	25V
2790	4822 124 40433	47μF	20%	25V
2791	4822 124 22263	220μF	20%	25V
2701	4822 122 10173	820pF	10%	50V
2702	4822 122 10182	100pF	5%	50V
2703	4822 124 41643	100μF	20%	16V
2704	4822 126 11595	470pF	10%	50V
2705	4822 126 11325	4.7nF	10%	50V
2706	4822 124 40433	47μF	20%	25V
2708	4822 124 40435	10μF	20%	50V
2709	4822 121 41857	10nF	5%	250V
2711	4822 124 22633	22μF	20%	35V
2712	4822 126 11311	4.7nF	50V	

## CAPACITORS

2701	4822 122 10173	820pF	10%	50V
2702	4822 122 10182	100pF	5%	50V
2703	4822 124 41643	100μF	20%	16V
2704	4822 126 11595	470pF	10%	50V
2705	4822 126 11325	4.7nF	10%	50V
2706	4822 124 40433	47μF	20%	25V
2708	4822 124 40435	10μF	20%	50V
2709	4822 121 41857	10nF	5%	250V
2711	4822 124 22633	22μF	20%	35V
2712	4822 126 11311	4.7nF	50V	

## POWER BOARD

### MECHANICAL PARTS

4822 255 40128 CLIP TO126  
5322 255 40397 CLIP IC

### MISCELLANEOUS

1304 4822 267 31176 SPEAKER TERMINAL  
1305 4822 264 30175 SOCKET EXT. SUPPLY

### DIODES

6250 4822 130 82079 D3SBA20  
6251 4822 130 30621 1N4148  
6252 4822 130 30621 1N4148  
6253 4822 130 34174 BZX79-C4V7  
6254 4822 130 30621 1N4148  
  
6255 5322 130 30684 1N4002  
6256 5322 130 30684 1N4002  
6257 5322 130 30684 1N4002  
6258 5322 130 30684 1N4002  
6259 4822 130 30621 1N4148  
  
6261 5322 130 30684 1N4002  
6350 4822 130 30621 1N4148  
6351 4822 130 30621 1N4148  
6352 4822 130 34278 BZX79-C6V8  
6354 4822 130 30621 1N4148

### TRANSISTORS

7250 4822 130 40937 BC548B  
7252 4822 130 61236 BD234  
7253 4822 130 40937 BC548B  
7254 4822 130 40937 BC548B  
7255 4822 130 44197 BC558B  
  
7309 4822 130 41344 BC337-40  
7310 4822 130 41344 BC337-40  
7311 4822 130 41344 BC337-40  
7312 4822 130 41344 BC337-40  
7350 4822 130 41344 BC337-40  
  
7351 4822 130 40937 BC548B  
7352 4822 130 40937 BC548B

### INTEGRATED CIRCUITS

7313 4822 209 73356 AN7161N(FP)  
7314 4822 209 73356 AN7161J(FP)

### COILS

5309 4822 157 62552 COIL 2.2μH  
5310 4822 157 62552 COIL 2.2μH  
5311 4822 157 62552 COIL 2.2μH  
5312 4822 157 62552 COIL 2.2μH  
5315 4822 157 62552 COIL 2.2μH  
  
5316 4822 157 62552 COIL 2.2μH

### RESISTORS

3250 4822 050 11002	1k	5%	0.2W
3251 4822 116 52233	10k	5%	0.5W
3252 4822 116 52233	10k	5%	0.5W
3254 4822 051 10333	33k	2%	0.25W
3255 4822 050 11002	1k	5%	0.2W
3256 4822 050 11002	1k	5%	0.2W
3257 4822 116 52233	10k	5%	0.5W
3258 4822 116 52283	4k7	5%	0.5W
3259 4822 051 10333	33k	2%	0.25W
3260 4822 116 52233	10k	5%	0.5W

### RESISTORS

3261 4822 116 52291	56k	5%	0.5W
3262 4822 050 11002	1k	5%	0.2W
3263 4822 116 52283	4k7	5%	0.5W
3264 4822 116 52217	270R	5%	0.5W
3307 4822 116 52256	2k2	5%	0.16W
3308 4822 116 52256	2k2	5%	0.16W
3309 4822 050 11002	1k	5%	0.2W
3310 4822 050 11002	1k	5%	0.2W
3311 4822 050 11002	1k	5%	0.2W
3312 4822 050 11002	1k	5%	0.2W
3313 4822 116 52256	2k2	5%	0.16W
3314 4822 116 52256	2k2	5%	0.16W
3315 4822 116 52257	22k	5%	0.5W
3316 4822 116 52257	22k	5%	0.5W
3317 4822 116 52217	270R	5%	0.5W
3318 4822 116 52217	270R	5%	0.5W
3318 4822 116 52215	220R	-5%	0.16W
3319 4822 052 10228	2R2	5%	0.33W
3320 4822 052 10228	2R2	5%	0.33W
3321 4822 052 10228	2R2	5%	0.33W
3322 4822 052 10228	2R2	5%	0.33W
3323 4822 116 52175	100R	5%	0.5W
3324 4822 116 52175	100R	5%	0.5W
3325 4822 116 52175	100R	5%	0.5W
3326 4822 116 52175	100R	5%	0.5W
3350 4822 052 10479	47R	5%	0.3W
3351 4822 116 52276	3k9	5%	0.5W
3352 4822 116 52233	10k	5%	0.5W
3353 4822 116 52233	10k	5%	0.5W
3354 4822 116 52234	100k	5%	0.5W
3355 4822 116 52217	270R	5%	0.5W

### CAPACITORS

2250 5322 121 42578	100nF	10%	100V
2251 5322 121 42386	100nF	5%	63V
2252 5322 121 42386	100nF	5%	63V
2253 4822 124 42119	4700μF	20%	25V
2254 4822 124 40242	1μF	20%	63V
2255 4822 122 33197	1nF	10%	50V
2256 4822 126 11585	22nF	50V	
2257 5322 121 42578	100nF	10%	100V
2258 5322 121 42386	100nF	5%	63V
2259 5322 121 42386	100nF	5%	63V
2260 4822 124 22412	2200μF	20%	16V
2261 4822 124 40201	1000μF	20%	16V
2262 4822 124 41525	100μF	20%	25V
2265 4822 124 41994	3300μF	20%	16V
2266 4822 122 33197	1nF	10%	50V
2267 4822 122 33197	1nF	10%	50V
2311 4822 124 40242	1μF	20%	63V
2312 4822 124 40242	1μF	20%	63V
2315 5322 121 42489	33nF	5%	100V
2316 5322 121 42489	33nF	5%	100V
2317 4822 124 40242	1μF	20%	63V
2318 4822 124 40242	1μF	20%	63V
2319 4822 124 40433	47μF	20%	25V
2320 4822 124 40433	47μF	20%	25V
2321 4822 122 33169	680pF	10%	50V

## CAPACITORS

2322	4822 122 33169	680pF	10%	50V
2323	5322 122 32777	1.8nF	10%	50V
2324	5322 122 32777	1.8nF	10%	50V
2325	4822 124 40196	220μF	20%	16V
2326	4822 124 40196	220μF	20%	16V
2329	5322 124 41431	22μF	20%	25V
2330	5322 124 41431	22μF	20%	25V
2333	4822 124 40433	47μF	20%	25V
2334	4822 124 40433	47μF	20%	25V
2335	4822 124 40433	47μF	20%	25V
2336	4822 124 40433	47μF	20%	25V
2337	4822 121 42408	220nF	5%	63V
2338	4822 121 42408	220nF	5%	63V
2339	4822 121 42408	220nF	5%	63V
2340	4822 121 42408	220nF	5%	63V
2350	4822 124 41525	100μF	20%	25V
2351	5322 121 42386	100nF	5%	63V
2352	5322 121 42386	100nF	5%	63V
2353	5322 121 42386	100nF	5%	63V
2354	4822 124 40242	1μF	20%	63V
2355	4822 126 12705	47pF	5%	50V
2356	4822 126 12705	47pF	5%	50V
2357	4822 124 40435	10μF	20%	50V
2361	4822 122 10177	10nF	20%	25V
2362	4822 122 10177	10nF	20%	25V

## TRAFO BOARD

## MISCELLANEOUS

1250	4822 071 55002	FUSE T5A
1250	4822 252 51123	FUSE T6.3A
1251	4822 071 56301	Fuse T 630mA/250V
1252	4822 071 56301	Fuse T 630mA/250V
1252	4822 253 30334	FUSE T1,25A
1255	4822 265 31015	MAINS SOCKET NOT FOR /37
1255	4822 265 31016	MAINS SOCKET ONLY FOR /37
1260	4822 272 10269	VOLTAGE SELECTOR

Values for fuses see Circuit Diagram on page 39

5250	4822 146 31239	TRAFO /20, /22
5250	4822 146 31234	TRAFO /37
5250	4822 146 31235	TRAFO AS445/21, /30
5250	4822 146 31235	TRAFO AS445/21, /30
5250	4822 146 31254	TRAFO /25

## COILS

5251	4822 157 70003	COIL, MAINS FILTER
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## RESISTORS

3298	4822 053 21106	10M	5%	0.5W
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**ECO4 Tuner****MISCELLANEOUS**

1101 4822 267 10283 SOCKET COAX IEC 75R  
 1101 4822 265 20598 F-CONNECT. COAX 75R

**DIODES**

6105 4822 130 83075 HN1V02H.  
 6109 4822 130 82833 1SV228  
 6122 4822 130 30621 1N4148  
 6121 4822 130 30621 1N4148  
 6123 4822 130 30621 1N4148  
  
 6124 4822 130 82833 1SV228  
 6140 4822 130 30621 1N4148  
 6154 4822 130 30621 1N4148  
 6174 4822 130 34233 BZX79-B5V1

**TRANSISTORS**

7102 5322 130 42136 BC848C(CHIP)  
 7104 5322 130 42136 BC848C(CHIP)  
 7105 4822 130 60093 2SA838B  
 7120 4822 130 60163 2SC1047  
 7121 5322 130 42136 BC848C(CHIP)  
  
 7123 5322 130 42136 BC848C(CHIP)  
 7128 5322 130 42136 BC848C(CHIP)  
 7152 5322 130 41983 BC858B(CHIP)  
 7156 4822 130 41344 BC337-40  
 7157 4822 130 41344 BC337-40  
  
 7169 5322 130 41983 BC858B(CHIP)  
 7170 5322 130 42136 BC848C(CHIP)  
 7171 5322 130 42136 BC848C(CHIP)  
 7174 5322 130 41983 BC858B(CHIP)  
 7178 5322 130 41983 BC858B(CHIP)  
  
 7179 5322 130 42136 BC848C(CHIP)

**INTEGRATED CIRCUITS**

7140 4822 209 32011 TEA5712T/N1 (Radio-IC)  
 7150 5322 209 14482 HEF4069UBT (6xINVERTER)  
 7172 4822 209 30606 MM74HCU04M (6xINVERTER)  
 7173 4822 209 31998 LC7218M SYNTHESIZER

**COILS**

5105 4822 158 60641 Ferrite ant.,MW/LW  
 5106 4822 158 60642 Ferrite ant.,MW  
 5109 4822 156 30947 RF COIL var. 1.5 TURNS  
 5120 4822 156 30947 RF COIL var. 1.5 TURNS  
 5122 4822 157 60517 COIL var. 110µH 8%  
  
 5123 4822 157 60517 COIL var. 110µH 8%  
 5140 4822 158 60511 AM-IF FILTER 450kHz  
 5142 4822 157 70302 AM-IF FILTER 450kHz  
 5143 4822 242 70665 CER. FILTER 10,7MHz  
 5144 4822 242 70665 CER. FILTER 10,7MHz  
  
 5145 4822 242 81362 CER. DISCRIMINATOR  
 5150 4822 157 50975 1mH 10%  
 5170 4822 242 72976 CER.RESONATOR 7,2MHz  
 5171 4822 157 50963 2,2µH

**RESISTORS**

3119	4822 116 52224	470R	5%	0,5W
3120	4822 116 52289	5k6	5%	0,16W
3124	4822 116 52256	2k2	5%	0,16W
3132	4822 116 52283	4k7	5%	0,5W
3141	4822 116 52215	220R	5%	0,16W
3148	4822 100 11682	POTMETER	47k LIN.	
3151	4822 116 52243	1k5	5%	0,16W
3156	4822 116 52233	10k	5%	0,5W
3162	4822 050 11002	1k	5%	0,2W
3163	4822 050 11002	1k	5%	0,2W
3164	4822 116 52283	4k7	5%	0,5W
3165	4822 116 52283	4k7	5%	0,5W
3170	4822 116 52283	4k7	5%	0,5W
3173	4822 116 52244	15k	5%	0,5W
3174	4822 116 52233	10k	5%	0,5W
3177	4822 116 52233	10k	5%	0,5W
3181	4822 116 52234	100k	5%	0,5W
3189	4822 116 52249	1k8	5%	0,16W
3190	4822 116 52249	1k8	5%	0,16W
3191	4822 116 52249	1k8	5%	0,16W
3192	4822 116 52249	1k8	5%	0,16W
3193	4822 116 52224	470R	5%	0,5W
3194	4822 050 24701	470R	5%	
3195	4822 050 24701	470R	5%	
3197	4822 050 24701	470R	5%	
<b>CHIP RESISTORS</b>				
3106	4822 051 20104	100k	5%	0,1W
3107	4822 051 20222	2k2	5%	0,1W
3108	4822 051 20104	100k	5%	0,1W
3109	4822 051 20222	2k2	5%	0,1W
3110	4822 051 20473	47k	5%	0,1W
3111	4822 051 20153	15k	5%	0,1W
3112	4822 051 20223	22k	5%	0,1W
3116	4822 051 20335	3M3	5%	0,1W
3121	4822 051 20104	100k	5%	0,1W
3122	4822 051 20471	470R	5%	0,1W
3123	4822 051 20223	22k	5%	0,1W
3125	4822 051 20472	4k7	5%	0,1W
3128	4822 051 20222	2k2	5%	0,1W
3129	4822 051 20472	4k7	5%	0,1W
3142	4822 051 20222	2k2	5%	0,1W
3144	4822 051 20473	47k	5%	0,1W
3147	4822 051 20184	180k	5%	0,1W
3149	4822 051 20683	68k	5%	0,1W
3154	4822 051 20333	33k	5%	0,1W
3155	4822 051 20333	33k	5%	0,1W
3157	4822 051 20473	47k	5%	0,1W
3158	4822 051 20189	18R	5%	0,1W
3160	4822 051 20823	82k	5%	0,1W
3161	4822 051 20823	82k	5%	0,1W
3166	4822 051 20101	100R	5%	0,1W
3167	4822 051 20008	CHIP JUMPER	0805	
3171	4822 051 20101	100R	5%	0,1W
3172	4822 051 20472	4k7	5%	0,1W
3175	4822 051 20104	100k	5%	0,1W
3176	4822 051 20104	100k	5%	0,1W
3178	4822 051 20104	100k	5%	0,1W
3179	4822 051 20223	22k	5%	0,1W
3180	4822 051 20104	100k	5%	0,1W
3183	4822 051 20223	22k	5%	0,1W
3184	4822 051 20223	22k	5%	0,1W

## CHIP RESISTORS

3185	4822 051 20104	100k	5%	0.1W
3186	4822 051 20104	100k	5%	0.1W
3188	4822 051 10102	1k	2%	0.25W
3211	4822 051 10008	CHIP JUMPER 1206		
3212	4822 051 10008	CHIP JUMPER 1206		

3213	4822 051 10008	CHIP JUMPER 1206		
3220	4822 051 20008	CHIP JUMPER 0805		
3222	4822 051 20008	CHIP JUMPER 0805		
3222	4822 051 20008	CHIP JUMPER 0805		
3223	4822 051 20008	CHIP JUMPER 0805		
3224	4822 051 20008	CHIP JUMPER 0805		
3226	4822 051 20008	CHIP JUMPER 0805		
3226	4822 051 20008	CHIP JUMPER 0805		
3228	4822 051 10008	CHIP JUMPER 1206		
3229	4822 051 20008	CHIP JUMPER 0805		
3229	4822 051 20008	CHIP JUMPER 0805		
3233	4822 051 20008	CHIP JUMPER 0805		
3237	4822 051 10008	CHIP JUMPER 1206		
3238	4822 051 20008	CHIP JUMPER 0805		
3240	4822 051 10008	CHIP JUMPER 1206		
3241	4822 051 20008	CHIP JUMPER 0805		
3241	4822 051 20008	CHIP JUMPER 0805		
3242	4822 051 10008	CHIP JUMPER 1206		
3243	4822 051 20008	CHIP JUMPER 0805		
3243	4822 051 20008	CHIP JUMPER 0805		
3244	4822 051 20008	CHIP JUMPER 0805		
3245	4822 051 20008	CHIP JUMPER 0805		
3245	4822 051 20008	CHIP JUMPER 0805		
3246	4822 051 10008	CHIP JUMPER 1206		
3247	4822 051 10008	CHIP JUMPER 1206		
3248	4822 051 20008	CHIP JUMPER 0805		
3249	4822 051 20153	15k	5%	0.1W
3249	4822 051 20821	820R	5%	0.1W
3249	4822 051 20821	820R	5%	0.1W

## CAPACITORS

2100	4822 122 33195	100pF	10%	50V
2104	4822 122 33195	100pF	10%	50V
2107	4822 122 31746	1nF	5%	50V
2115	4822 125 60101	10pF VARIABLE		
2122	4822 122 31746	1nF	5%	50V
2123	4822 122 31746	1nF	5%	50V
2124	4822 121 51387	10nF	20%	16V
2129	4822 121 43705	390pF	1%	160V
2130	4822 125 50355	4.2 - 20pF VARIABLE		
2134	4822 122 33197	1nF	10%	50V
2135	4822 121 70245	560pF	1%	160V
2141	4822 124 40244	2,2 $\mu$ F	20%	63V
2142	4822 124 40242	1 $\mu$ F	20%	63V
2150	4822 124 40435	10 $\mu$ F	20%	50V
2151	4822 124 40435	10 $\mu$ F	20%	50V
2156	5322 126 10181	100nF		25V
2157	5322 126 10181	100nF		25V
2158	4822 122 31746	1nF	5%	50V
2159	4822 122 31746	1nF	5%	50V
2160	4822 124 40242	1 $\mu$ F	20%	63V
2161	4822 124 40242	1 $\mu$ F	20%	63V
2162	4822 124 40242	1 $\mu$ F	20%	63V
2172	4822 124 41631	1.5 $\mu$ F	20%	50V
2173	4822 124 40433	47 $\mu$ F	20%	25V
2177	5322 126 10181	100nF		25V

## CAPACITORS

2178	4822 122 33197	1nF	10%	50V
2179	4822 122 33195	100pF	10%	50V
2184	4822 124 41584	100 $\mu$ F	20%	10V
2186	4822 122 31746	1nF	5%	50V

## CHIP CAPACITORS

2110	5322 122 32659	33pF	5%	50V
2110	5322 122 32269	6,8pF	5%	50V
2110	5322 122 32269	6,8pF	5%	50V
2112	4822 122 33496	100nF	10%	63V
2114	5322 122 32531	100pF	5%	50V
2120	5322 122 32268	470pF	10%	50V
2121	5322 122 32481	15pF	5%	50V
2133	4822 122 33177	10nF	20%	50V
2138	5322 122 32658	22pF	5%	50V
2138	5322 122 32658	22pF	5%	50V
2139	4822 122 32627	2,2nF	10%	50V
2143	4822 122 33325	470nF	20%	50V
2144	4822 122 33325	470nF	20%	50V
2145	4822 122 33496	100nF	10%	63V
2146	5322 122 33063	2,2pF	10%	50V
2147	4822 122 33177	10nF	20%	50V
2152	4822 122 33496	100nF	10%	63V
2154	4822 122 33175	2,2nF	20%	50V
2155	4822 122 33175	2,2nF	20%	50V
2158	4822 122 31775	680pF	5%	50V
2159	4822 122 31775	680pF	5%	50V
2168	4822 122 33481	1,8nF	5%	NPO
2169	5322 122 31863	330pF	5%	50V
2170	5322 126 10223	4,7nF	10%	63V
2171	5322 126 10223	4,7nF	10%	63V
2174	5322 116 80853	560pF	5%	63V
2175	5322 122 32531	100pF	5%	50V
2180	5322 122 31946	27pF	5%	50V
2181	4822 122 32139	12pF	5%	63V
2183	4822 122 33496	100nF	10%	63V
2185	4822 122 33496	100nF	10%	63V

**TUNER 92****MISCELLANEOUS**

1101	4822 210 10492	FRONTEND ASSY /02/08
1110	4822 267 10283	SOCKET COAX IEC 75R

**DIODES**

6101	4822 130 34174	BZX79-C4V7
6102	4822 130 83075	HN1V02H
6109	4822 130 30621	1N4148

**TRANSISTORS**

7101	4822 130 60163	2SC1047
7104	5322 130 60068	BC558C
7106	5322 130 60068	BC558C
7107	5322 130 41982	BC848 (CHIP)
7108	4822 130 44196	BC548C
7109	4822 130 44196	BC548C
7111	5322 130 41982	BC848 (CHIP)
7112	4822 130 60163	2SC1047
7113	4822 130 44196	BC548C
7114	4822 130 40937	BC548B
7115	4822 130 41024	BF245B
7116	4822 130 60163	2SC1047
7119	5322 130 41983	BC858B(CHIP)
7120	4822 130 44196	BC548C
7150	5322 130 44779	BC338-40
7151	4822 130 60163	2SC1047
7157	5322 130 44779	BC338-40

**INTEGRATED CIRCUITS**

7103	4822 209 31001	LA1851N
7105	4822 209 30178	LC7218

**COILS**

5101	4822 157 53192	0.22 $\mu$ H
5103	4822 242 81249	CER. FILTER 10.7MHz
5104	4822 157 63029	AM IF COIL
5105	4822 157 63904	Q-DETECION COIL
5106	4822 157 63802	BIRDY FILTER
5108	4822 157 63912	OSC.COIL AM 3-BAND
5110	4822 242 71878	CERAM.RES. 450kHz
5111	4822 242 81248	CER. FILTER 10.7MHz
5112	4822 242 72976	CER.RESONATOR 7.2MHz
5113	4822 242 81249	CER. FILTER 10.7MHz
5114	4822 152 20699	560 $\mu$ H
5127	4822 158 60643	FERROCEPTOR

**RESISTORS**

3101	4822 052 10478	4R7	5%	NFR
3108	4822 116 52224	470R	5%	0.5W
3113	4822 050 22201	220R	2%	0.25W
3118	4822 050 22201	220R	2%	0.25W
3120	4822 052 10229	22R	5%	0.33W
3125	4822 100 11213	22k	30%	POT.
3131	4822 100 11319	4k7 trimpot.		
3134	4822 050 15602	5k6	1%	0.4W
3138	4822 116 83922	150R	5%	1W
3147	4822 050 15602	5k6	1%	0.4W
3150	4822 050 25601	560R	1%	0.6W
3151	4822 050 24702	4k7	1%	0.6W
3155	4822 050 22201	220R	2%	0.25W
3158	4822 050 24702	4k7	1%	0.6W
3162	4822 050 22701	270R	1%	0.6W

**RESISTORS**

3165	4822 050 21002	1k	1%	0.6W
3166	4822 050 21002	1k	1%	0.6W
3167	4822 050 21002	1k	1%	0.6W
3183	4822 050 21003	10k	2%	0.25W
3186	4822 050 21003	10k	2%	0.25W
3225	4822 050 21002	1k	1%	0.6W
3244	5322 116 44005	250R	25%	

**CHIP RESISTORS**

3102	4822 051 20224	220k	5%	0.1W
3104	4822 051 20154	150k	5%	0.1W
3105	4822 051 20562	5k6	5%	0.1W
3106	4822 051 20829	82R	5%	0.1W
3107	4822 051 20104	100k	5%	0.1W
3114	4822 051 20332	3k3	5%	0.1W
3115	4822 051 20391	390R	5%	0.1W
3116	4822 051 20478	4R7	5%	0.1W
3117	4822 051 20331	330R	5%	0.1W
3121	4822 051 20272	2k7	5%	0.1W
3122	4822 051 20562	5k6	5%	0.1W
3123	4822 051 20223	22k	5%	0.1W
3124	4822 051 20103	10k	5%	0.1W
3126	4822 051 20123	12k	2%	0.1W
3127	4822 051 20562	5k6	5%	0.1W
3129	4822 051 20103	10k	5%	0.1W
3132	4822 051 20183	18k	5%	0.1W
3133	4822 051 20008			CHIP JUMPER 0805
3135	4822 051 10008			CHIP JUMPER 1206
3141	4822 051 20472	4k7	5%	0.1W
3142	4822 051 20472	4k7	5%	0.1W
3143	4822 051 20821	820R	5%	0.1W
3144	4822 051 20331	330R	5%	0.1W
3145	4822 051 20271	270R	5%	0.1W
3148	4822 051 20104	100k	5%	0.1W
3149	4822 051 20472	4k7	5%	0.1W
3152	4822 051 20103	10k	5%	0.1W
3153	4822 051 20274	270k	5%	0.1W
3156	4822 051 20153	15k	5%	0.1W
3157	4822 051 20472	4k7	5%	0.1W
3159	4822 051 20104	100k	5%	0.1W
3160	4822 051 20104	100k	5%	0.1W
3163	4822 051 20103	10k	5%	0.1W
3164	4822 051 20473	47k	5%	0.1W
3170	4822 051 20103	10k	5%	0.1W
3171	4822 051 20223	22k	5%	0.1W
3172	4822 051 20472	4k7	5%	0.1W
3173	4822 051 20223	22k	5%	0.1W
3184	4822 051 20332	3k3	5%	0.1W
3185	4822 051 20103	10k	5%	0.1W
3187	4822 051 20103	10k	5%	0.1W
3190	4822 051 20479	47R	5%	0.1W
3194	4822 051 20472	4k7	5%	0.1W
3196	4822 051 20008			CHIP JUMPER 0805
3197	4822 051 20008			CHIP JUMPER 0805
3198	4822 051 20103	10k	5%	0.1W
3200	4822 051 20008			CHIP JUMPER 0805
3201	4822 051 20103	10k	5%	0.1W
3202	4822 051 20008			CHIP JUMPER 0805
3223	4822 051 20474	470k	5%	0.1W

## CHIP RESISTORS

3230	4822 051 20223	22k	5%	0.1W
3231	4822 051 20223	22k	5%	0.1W
3233	4822 051 10102	1k	2%	0.25W
3236	4822 051 20008	CHIP JUMPER 0805		
3239	4822 051 20274	270k	5%	0.1W
3240	4822 051 20472	4k7	5%	0.1W

## CHIP CAPACITORS

2219	4822 122 32927	220nF	10%	63V
2221	5322 122 32268	470pF	10%	50V
2224	4822 122 33575	220pF	5%	50V
2225	4822 122 33575	220pF	5%	50V

## CAPACITORS

2103	4822 124 40433	47μF	20%	25V
2104	4822 121 42408	220nF	5%	63V
2107	4822 122 31385	22pF	5%	50V
2114	5322 124 41431	22μF	20%	25V
2115	4822 124 40239	0.47μF	20%	63V
2116	5322 121 42386	100nF	5%	63V
2117	4822 121 41935	12nF	5%	250V
2118	4822 121 41935	12nF	5%	250V
2119	4822 124 40244	2.2μF	20%	63V
2120	4822 124 40244	2.2μF	20%	63V
2121	4822 124 40196	220μF	20%	16V
2123	4822 124 40246	4.7μF	20%	63V
2124	4822 124 40246	4.7μF	20%	63V
2129	4822 124 40242	1μF	20%	63V
2131	4822 124 40435	10μF	20%	50V
2142	4822 125 60102	30pF VARIABLE		
2144	4822 121 42408	220nF	5%	63V
2145	4822 121 51263	510pF	1%	400V
2146	4822 121 70082	430pF	1%	400V
2152	4822 124 40242	1μF	20%	63V
2156	4822 124 40433	47μF	20%	25V
2160	4822 124 41631	1.5μF	20%	50V
2162	4822 122 10166	22nF	30%	16V
2165	4822 124 40433	47μF	20%	25V
2193	4822 125 60102	30pF VARIABLE		
2194	4822 125 60101	10pF VARIABLE		
2210	4822 124 41643	100μF	20%	16V

## CHIP CAPACITORS

2101	5322 122 34099	470pF	10%	63V
2102	5322 122 32268	470pF	10%	50V
2105	5322 122 32965	18pF	5%	50V
2108	5322 122 32654	22nF	10%	63V
2109	5322 122 32654	22nF	10%	63V
2110	5322 122 32654	22nF	10%	63V
2112	5322 122 32654	22nF	10%	63V
2113	5322 122 32661	56pF	5%	50V
2125	4822 122 33177	10nF	20%	50V
2126	4822 122 31782	15nF	10%	50V
2147	5322 122 32654	22nF	10%	63V
2148	5322 122 32452	47pF	5%	50V
2149	4822 122 33177	10nF	20%	50V
2150	5322 122 32654	22nF	10%	63V
2151	5322 122 34099	470pF	10%	63V
2153	5322 122 34099	470pF	10%	63V
2154	5322 122 32481	15pF	5%	50V
2155	5322 122 32965	18pF	5%	50V
2158	5322 126 10223	4.7nF	10%	63V
2159	5322 126 10223	4.7nF	10%	63V
2161	4822 122 32927	220nF	10%	63V
2195	4822 126 10004	120pF	5%	63V
2196	5322 122 32448	10pF	5%	50V
2215	5322 122 32268	470pF	10%	50V
2216	5322 122 32268	470pF	10%	50V

**CD BOARD****MISCELLANEOUS**

1020	4822 071 51601	FUSE 160mA
1021	4822 071 51601	FUSE 160mA
1250	4822 267 30933	SOCKET CHINCH

**DIODES**

6103	4822 130 30621	1N4148
6550	4822 130 31981	BZX79-C3V9
6660	4822 130 34173	BZX79-C5V6

**TRANSISTORS**

7040	4822 130 60887	BF840
7041	5322 130 41982	BC848 (CHIP)
7042	5322 130 41983	BC858B(CHIP)
7043	5322 130 41982	BC848 (CHIP)
7044	5322 130 41982	BC848 (CHIP)
7140	5322 130 42012	BC858 (CHIP)
7141	4822 130 61207	BC848 (CHIP)
7360	4822 130 42804	BC817-25 (CHIP)
7361	4822 130 42804	BC817-25 (CHIP)
7362	5322 130 42012	BC858 (CHIP)
7550	5322 130 42012	BC858 (CHIP)

**INTEGRATED CIRCUITS**

7000	4822 209 31064	TDA1301T/N1
7060	4822 209 72587	TCA372DP2
7080	4822 209 72587	TCA372DP2
7101	4822 209 63925	FCB61C65L-70T
7102	4822 209 30388	SAA7341GP
7300	4822 209 83274	NJM4560D
7301	4822 209 83274	NJM4560D
7500	4822 209 80891	MC7805CT
7660	4822 209 72587	TCA372DP2
7700	4822 900 10318	MC68HC05C8/SERVO-S17

**COILS**

1002	4822 242 73557	CERAMIC RES. 8.46MHz
1570	4822 242 81151	X-TAL 16.934MHz
1700	4822 242 72527	CERAMIC RES. 4.0 MHz
5250	4822 148 80281	COIL 100µH

**RESISTORS**

3000	4822 050 21003	10k 2% 0.25W
3001	4822 050 21003	10k 2% 0.25W
3002	4822 050 21003	10k 2% 0.25W
3003	4822 050 21003	10k 2% 0.25W
3004	4822 050 21003	10k 2% 0.25W
3005	4822 050 21003	10k 2% 0.25W
3007	4822 052 10338	3R3 NFR25
3008	4822 052 10338	3R3 NFR25
3014	4822 052 10478	4R7 5% NFR
3015	4822 050 21002	1k 1% 0.6W
3016	4822 050 21002	1k 1% 0.6W
3049	4822 050 24301	430R 1% 0.6W
3056	4822 050 21204	120k 1% 0.6W
3057	4822 050 25603	56k 1% 0.6W
3058	4822 050 21002	1k 1% 0.6W
3062	4822 116 52244	15k 5% 0.5W
3064	4822 050 21503	15k 1% 0.6W
3065	4822 052 10229	22R 5% 0.33W
3066	4822 052 10108	1R 5% 0.33W
3067	4822 052 10108	1R 5% 0.33W

**RESISTORS**

3072	4822 050 26802	6k8 1% 0.6W
3073	4822 052 10229	22R 5% 0.33W
3074	4822 116 52244	15k 5% 0.5W
3075	4822 050 21003	10k 2% 0.25W
3081	4822 050 24702	4k7 1% 0.6W
3083	4822 052 10108	1R 5% 0.33W
3084	4822 052 10108	1R 5% 0.33W
3085	4822 050 21003	10k 2% 0.25W
3086	4822 052 10229	22R 5% 0.33W
3087	4822 116 52244	15k 5% 0.5W
3100	4822 050 22202	2k2 1% 0.6W
3103	4822 052 10338	3R3 NFR25
3105	4822 052 10338	3R3 NFR25
3111	4822 052 10229	22R 5% 0.33W
3112	4822 050 22205	2M2 1% 0.6W
3140	4822 116 52234	100k 5% 0.5W
3142	4822 050 24703	47k 1% 0.6W
3143	4822 052 10229	22R 5% 0.33W
3146	4822 050 21003	10k 2% 0.25W
3305	4822 052 10229	22R 5% 0.33W
3306	4822 052 10229	22R 5% 0.33W
3312	4822 050 22203	22k 1% 0.6W
3314	4822 050 21002	1k 1% 0.6W
3315	4822 050 21002	1k 1% 0.6W
3501	4822 052 10108	1R 5% 0.33W
3502	4822 052 10108	1R 5% 0.33W
3611	4822 116 52303	8k2 5% 0.5W
3615	4822 052 10108	1R 5% 0.33W
3616	4822 052 10108	1R 5% 0.33W
3617	4822 052 10229	22R 5% 0.33W
3701	4822 052 10338	3R3 NFR25
3006	4822 051 20103	10k 5% 0.1W
3009	4822 051 20105	1M 5% 0.1W
3010	4822 051 20103	10k 5% 0.1W
3011	4822 051 20103	10k 5% 0.1W
3012	4822 051 10102	1k 2% 0.25W
3013	4822 051 10102	1k 2% 0.25W
3017	4822 051 10102	1k 2% 0.25W
3040	4822 051 10101	100R 5% 0.125W
3041	4822 051 20393	39k 5% 0.1W
3042	4822 051 20334	330k 5% 0.1W
3043	4822 051 20303	30k 5% 0.1W
3044	4822 051 10102	1k 2% 0.25W
3045	4822 051 20101	100R 5% 0.1W
3046	4822 051 10102	1k 2% 0.25W
3047	4822 051 20434	430k 5% 0.1W
3048	4822 051 20101	100R 5% 0.1W
3050	4822 051 20434	430k 5% 0.1W
3051	4822 051 20182	1k8 5% 0.1W
3052	4822 051 20182	1k8 5% 0.1W
3053	4822 051 20392	3k9 5% 0.1W
3054	4822 051 20101	100R 5% 0.1W
3055	4822 051 20124	120k 5% 0.1W
3056	4822 117 10036	7k5 1% 0.1W
3061	4822 051 20682	6k8 5% 0.1W
3063	4822 051 20103	10k 5% 0.1W

## CHIP RESISTORS

3070	4822 051 20153	15k	5%	0.1W
3071	4822 051 20103	10k	5%	0.1W
3080	4822 051 20682	6k8	5%	0.1W
3082	4822 051 20153	15k	5%	0.1W
3101	4822 051 20223	22k	5%	0.1W
3102	4822 051 20223	22k	5%	0.1W
3106	4822 051 10102	1k	2%	0.25W
3109	4822 051 20222	2k2	5%	0.1W
3110	4822 051 20105	1M	5%	0.1W
3117	4822 051 20182	1k8	5%	0.1W
3118	4822 051 20182	1k8	5%	0.1W
3119	4822 051 10561	560R	2%	0.25W
3141	4822 051 20104	100k	5%	0.1W
3144	4822 051 20223	22k	5%	0.1W
3147	4822 051 20392	3k9	5%	0.1W
3148	4822 051 20473	47k	5%	0.1W
3255	4822 051 10561	560R	2%	0.25W
3256	4822 051 20621	620R	5%	0.1W
3300	4822 051 20104	100k	5%	0.1W
3301	4822 051 20273	27k	5%	0.1W
3302	4822 051 20332	3k3	5%	0.1W
3303	4822 051 20123	12k	2%	0.1W
3304	4822 051 20123	12k	2%	0.1W
3307	4822 051 20332	3k3	5%	0.1W
3308	4822 051 20123	12k	2%	0.1W
3309	4822 051 20104	100k	5%	0.1W
3310	4822 051 20273	27k	5%	0.1W
3311	4822 051 20123	12k	2%	0.1W
3313	4822 051 20223	22k	5%	0.1W
3320	4822 116 83933	15k	1%	0.1W
3321	4822 116 83933	15k	1%	0.1W
3322	4822 116 83933	15k	1%	0.1W
3323	4822 116 83933	15k	1%	0.1W
3325	4822 116 83933	15k	1%	0.1W
3326	4822 116 83933	15k	1%	0.1W
3327	4822 116 83933	15k	1%	0.1W
3328	4822 116 83933	15k	1%	0.1W
3360	4822 051 10102	1k	2%	0.25W
3361	4822 051 10102	1k	2%	0.25W
3550	4822 051 20561	560R	5%	0.1W
3551	4822 051 10102	1k	2%	0.25W
3552	4822 051 20223	22k	5%	0.1W
3553	4822 051 10102	1k	2%	0.25W
3610	4822 051 20123	12k	2%	0.1W
3612	4822 051 20123	12k	2%	0.1W
3613	4822 051 20123	12k	2%	0.1W
3614	4822 051 20123	12k	2%	0.1W
3662	4822 051 20103	10k	5%	0.1W
3663	4822 051 20103	10k	5%	0.1W
3664	4822 051 20103	10k	5%	0.1W
3665	4822 051 20561	560R	5%	0.1W
3700	4822 051 20224	220k	5%	0.1W
3706	4822 051 20103	10k	5%	0.1W
3707	4822 051 20103	10k	5%	0.1W
3708	4822 051 20103	10k	5%	0.1W
3710	4822 051 20103	10k	5%	0.1W
3711	4822 051 20332	3k3	5%	0.1W
3713	4822 051 20103	10k	5%	0.1W
3714	4822 051 20103	10k	5%	0.1W
3715	4822 051 20332	3k3	5%	0.1W
3716	4822 051 20103	10k	5%	0.1W
3717	4822 051 20103	10k	5%	0.1W
3718	4822 051 20103	10k	5%	0.1W
3719	4822 051 20103	10k	5%	0.1W
3720	4822 051 20103	10k	5%	0.1W

## CHIP RESISTORS

3721	4822 051 20103	10k	5%	0.1W
3722	4822 051 10102	1k	2%	0.25W
3723	4822 051 10102	1k	2%	0.25W
3724	4822 051 10102	1k	2%	0.25W
4000	4822 051 10008	CHIP JUMPER 1206		
4001	4822 051 10008	CHIP JUMPER 1206		
4002	4822 051 10008	CHIP JUMPER 1206		
4003	4822 051 10008	CHIP JUMPER 1206		
4004	4822 051 10008	CHIP JUMPER 1206		
4104	4822 051 10008	CHIP JUMPER 1206		
4105	4822 051 10008	CHIP JUMPER 1206		
4106	4822 051 10008	CHIP JUMPER 1206		
4107	4822 051 10008	CHIP JUMPER 1206		
4108	4822 051 10008	CHIP JUMPER 1206		
4109	4822 051 10008	CHIP JUMPER 1206		
4200	4822 051 10008	CHIP JUMPER 1206		
4302	4822 051 10008	CHIP JUMPER 1206		
4600	4822 051 10008	CHIP JUMPER 1206		
4700	4822 051 10008	CHIP JUMPER 1206		
4701	4822 051 10008	CHIP JUMPER 1206		
2010	5322 124 21643	22μF	20%	40V
2012	4822 124 40272	33μF	20%	16V
2015	5322 124 21643	22μF	20%	40V
2017	5322 124 21643	22μF	20%	40V
2042	5322 124 21643	22μF	20%	40V
2052	5322 124 21643	22μF	20%	40V
2062	4822 124 40272	33μF	20%	16V
2063	4822 124 40272	33μF	20%	16V
2081	5322 124 21643	22μF	20%	40V
2083	5322 124 21643	22μF	20%	40V
2103	4822 124 40849	330μF	20%	16V
2105	5322 121 42661	330nF	5%	63V
2107	4822 124 41584	100μF	20%	10V
2109	4822 124 40242	1μF	20%	63V
2111	5322 121 42386	100nF	5%	63V
2116	4822 124 40242	1μF	20%	63V
2119	4822 124 41584	100μF	20%	10V
2122	4822 124 40849	330μF	20%	16V
2301	4822 124 40272	33μF	20%	16V
2302	4822 124 40246	4.7uF	20%	63V
2304	4822 124 40272	33μF	20%	16V
2305	4822 124 40246	4.7uF	20%	63V
2311	4822 124 40246	4.7uF	20%	63V
2500	4822 124 80148	2200μF	20%	16V
2502	4822 124 41853	1000μF	20%	16V
2702	4822 124 40272	33μF	20%	16V
2000	5322 122 31865	1.5nF	10%	63V
2001	5322 116 80853	560pF	5%	63V
2003	4822 122 32575	220pF	10%	500V
2004	4822 122 32575	220pF	10%	500V
2005	4822 122 32575	220pF	10%	500V
2006	4822 122 32575	220pF	10%	500V
2007	4822 122 32575	220pF	10%	500V
2008	4822 122 32575	220pF	10%	500V
2009	4822 122 33496	100nF	10%	63V
2011	4822 122 33496	100nF	10%	63V
2016	4822 122 33496	100nF	10%	63V
2018	4822 122 33496	100nF	10%	63V
2019	4822 122 33809	22nF	20%	
2040	5322 122 32654	22nF	10%	63V
2041	4822 126 10326	180pF	5%	

## CHIP CAPACITORS

## CHIP CAPACITORS

2043	5322 122 31863	330pF	5%	50V
2044	4822 126 10326	180pF	5%	
2045	5322 122 32452	47pF	5%	50V
2046	5322 122 32452	47pF	5%	50V
2047	5322 122 32531	100pF	5%	50V
2048	5322 122 32965	18pF	5%	50V
2049	4822 126 10326	180pF	5%	
2050	4822 126 10326	180pF	5%	
2051	5322 122 31863	330pF	5%	50V
2060	4822 122 33496	100nF	10%	63V
2061	4822 122 33496	100nF	10%	63V
2064	4822 122 33342	33nF	10%	63V
2065	4822 122 33496	100nF	10%	63V
2066	4822 122 33175	2.2nF	20%	50V
2070	4822 122 33176	2.7nF	20%	50V
2071	4822 122 33496	100nF	10%	63V
2072	4822 126 10326	180pF	5%	
2080	4822 122 33496	100nF	10%	63V
2082	4822 122 33496	100nF	10%	63V
2084	4822 126 10326	180pF	5%	
2085	4822 122 33496	100nF	10%	63V
2086	5322 126 10465	3.9nF	10%	63V
2101	5322 122 32452	47pF	5%	50V
2102	4822 122 33175	2.2nF	20%	50V
2104	4822 122 33496	100nF	10%	63V
2106	4822 122 33496	100nF	10%	63V
2108	4822 122 33809	22nF	20%	
2110	5322 122 32659	33pF	5%	50V
2112	4822 122 33496	100nF	10%	63V
2114	5322 122 32452	47pF	5%	50V
2115	5322 122 32452	47pF	5%	50V
2117	5322 126 10223	4.7nF	10%	63V
2118	5322 126 10223	4.7nF	10%	63V
2120	4822 122 33496	100nF	10%	63V
2121	4822 122 33496	100nF	10%	63V
2123	4822 122 33496	100nF	10%	63V
2125	5322 126 10223	4.7nF	10%	63V
2140	4822 122 33496	100nF	10%	63V
2141	4822 122 32542	47nF	10%	63V
2253	4822 122 33105	56nF	10%	63V
2300	5322 116 80853	560pF	5%	63V
2303	4822 122 33216	270pF	5%	50V
2306	4822 122 33496	100nF	10%	63V
2309	4822 122 33216	270pF	5%	50V
2310	5322 116 80853	560pF	5%	63V
2312	4822 122 33219	1.8nF	10%	50V
2313	4822 122 33219	1.8nF	10%	50V
2501	4822 122 33496	100nF	10%	63V
2503	4822 122 33496	100nF	10%	63V
2504	4822 122 33496	100nF	10%	63V
2550	4822 122 33175	2.2nF	20%	50V
2610	4822 122 33496	100nF	10%	63V
2611	4822 122 33496	100nF	10%	63V
2612	4822 122 33496	100nF	10%	63V
2703	4822 122 33809	22nF	20%	
2704	4822 122 33175	2.2nF	20%	50V

## ACCESSORIES

4822 321 10831	AC CORD /20, /21, /22
4822 321 10918	AC CORD /25
4822 321 10954	AC CORD /30
4822 321 10883	AC CORD /37
4822 218 10513	IR REMOTE CONTROL
4822 445 10359	SPEAKER /20,/22,/25
4822 445 10361	SPEAKER/37
4822 445 10362	SPEAKER/21
4822 321 10831	SPEAKER/30